

The
**HOW
AND
WHY**

Wonder Book of

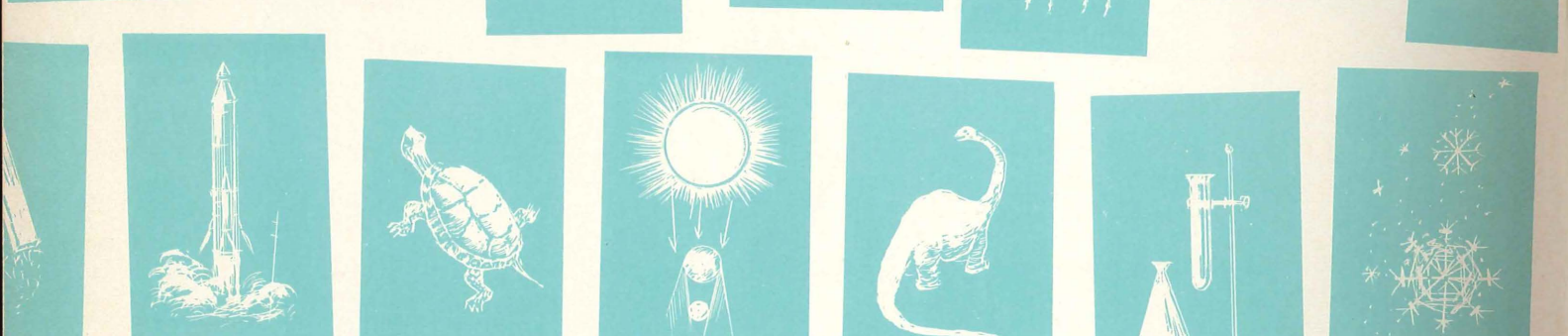
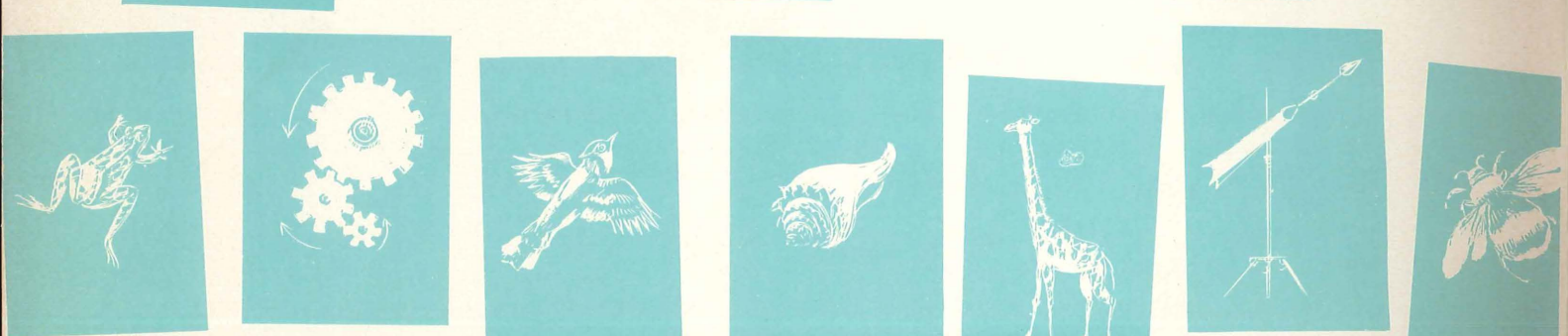
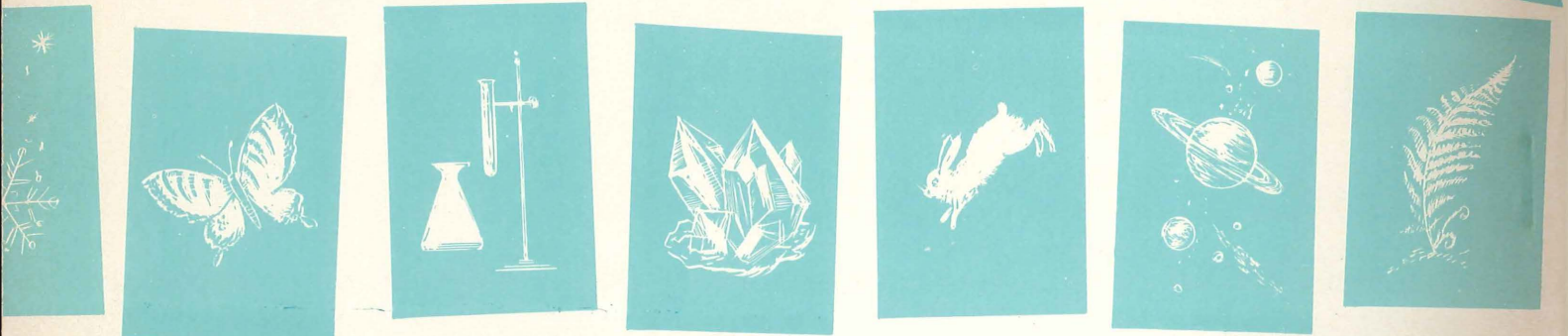
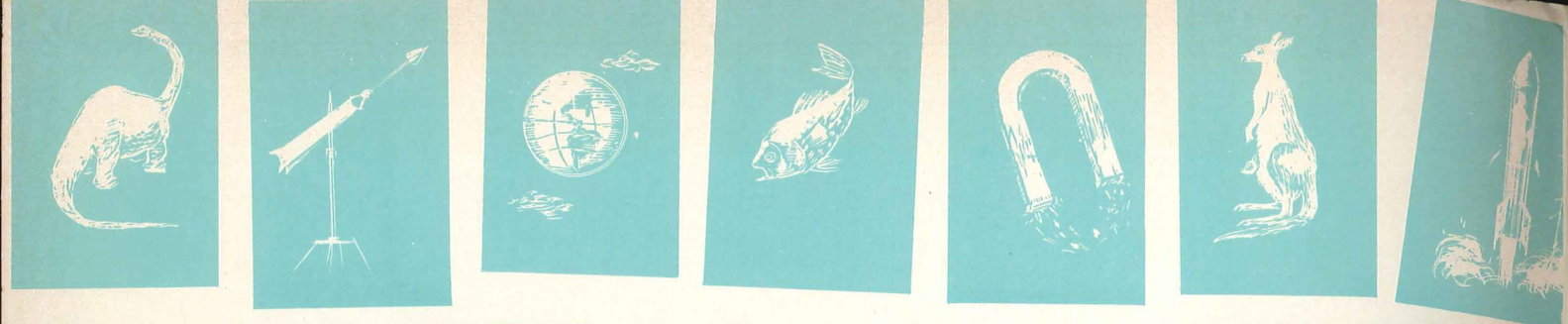
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LOST CITIES



How and Why Wonder Books

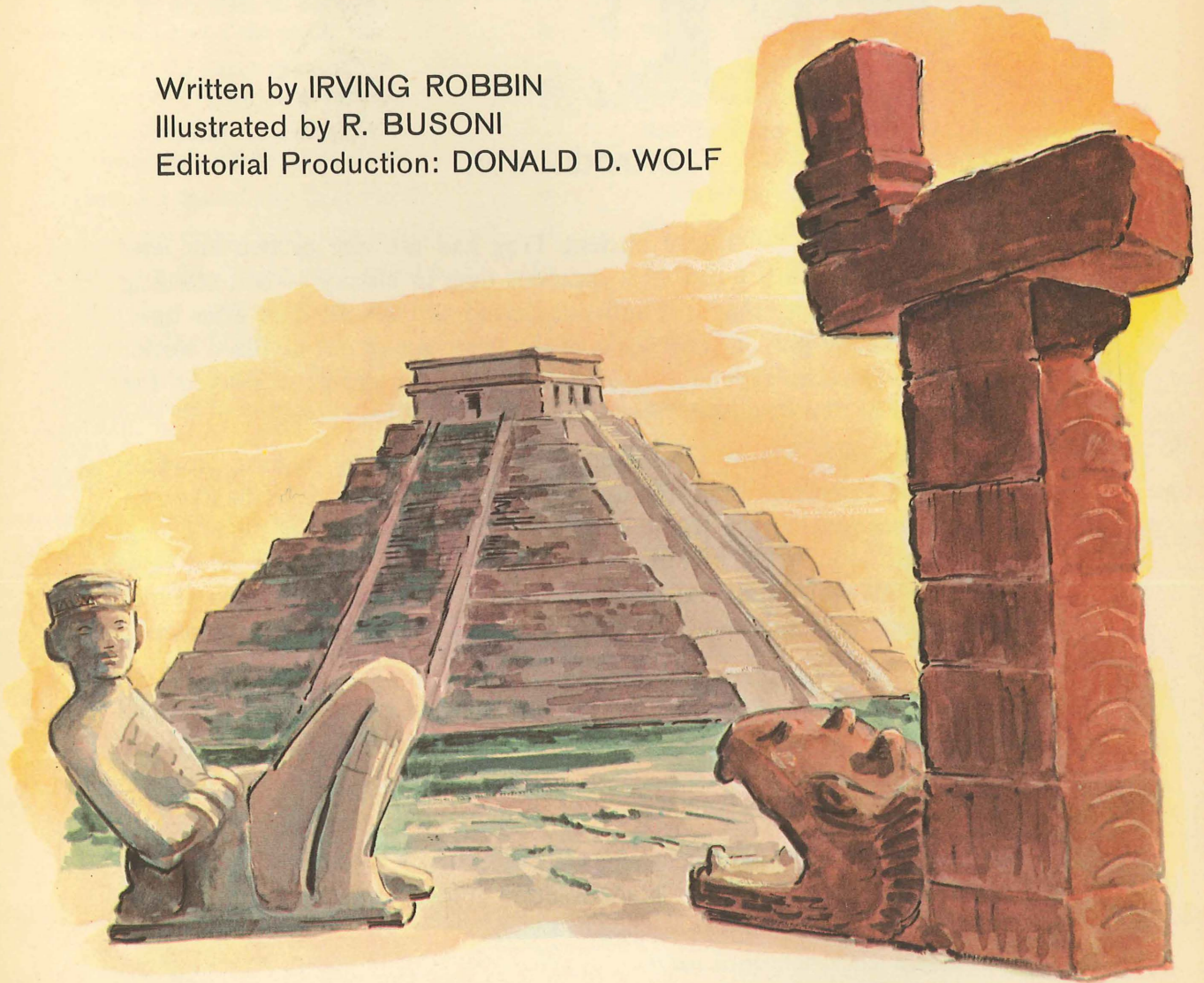


THE HOW AND WHY WONDER BOOK OF **LOST CITIES**

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WONDER BOOKS • NEW YORK



Introduction

To learn that the site of ancient Troy had not one or two but *nine* distinct layers — each a city of a different time in history — is a startling fact. Here was a city that was built, destroyed and rebuilt time after time. Such a revelation gives a vivid sense of the great age of our civilized world. But the evidence in Troy is only a small part of the dramatic story of the past as told in *The How and Why Wonder Book of Lost Cities*.

Archaeology, a fairly new science by which men study the past, provides information about lost civilizations. In this book we see how archaeologists work to piece together the jigsaw puzzle of the past, to learn of men of long ago — their tools, their homes, their arts, their languages. We read how explorers, following hints from legends, were led to the buried cities and how, with modern tools and knowledge, many of these cities have been explored and reconstructed.

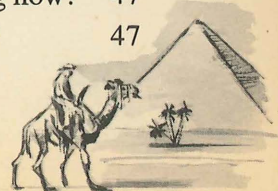
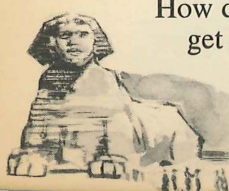
In this book we visit many countries in Europe, Asia and the Americas. We gain a feeling of the creative, artistic and engineering power of men in earlier centuries. And we get a fleeting glimpse of the idea that modern cities, subject to the tooth of time, may some day also be lost.

The How and Why Wonder Book of Lost Cities is an authentic introduction to archaeology for young readers and a stimulating review for readers already acquainted with this science.

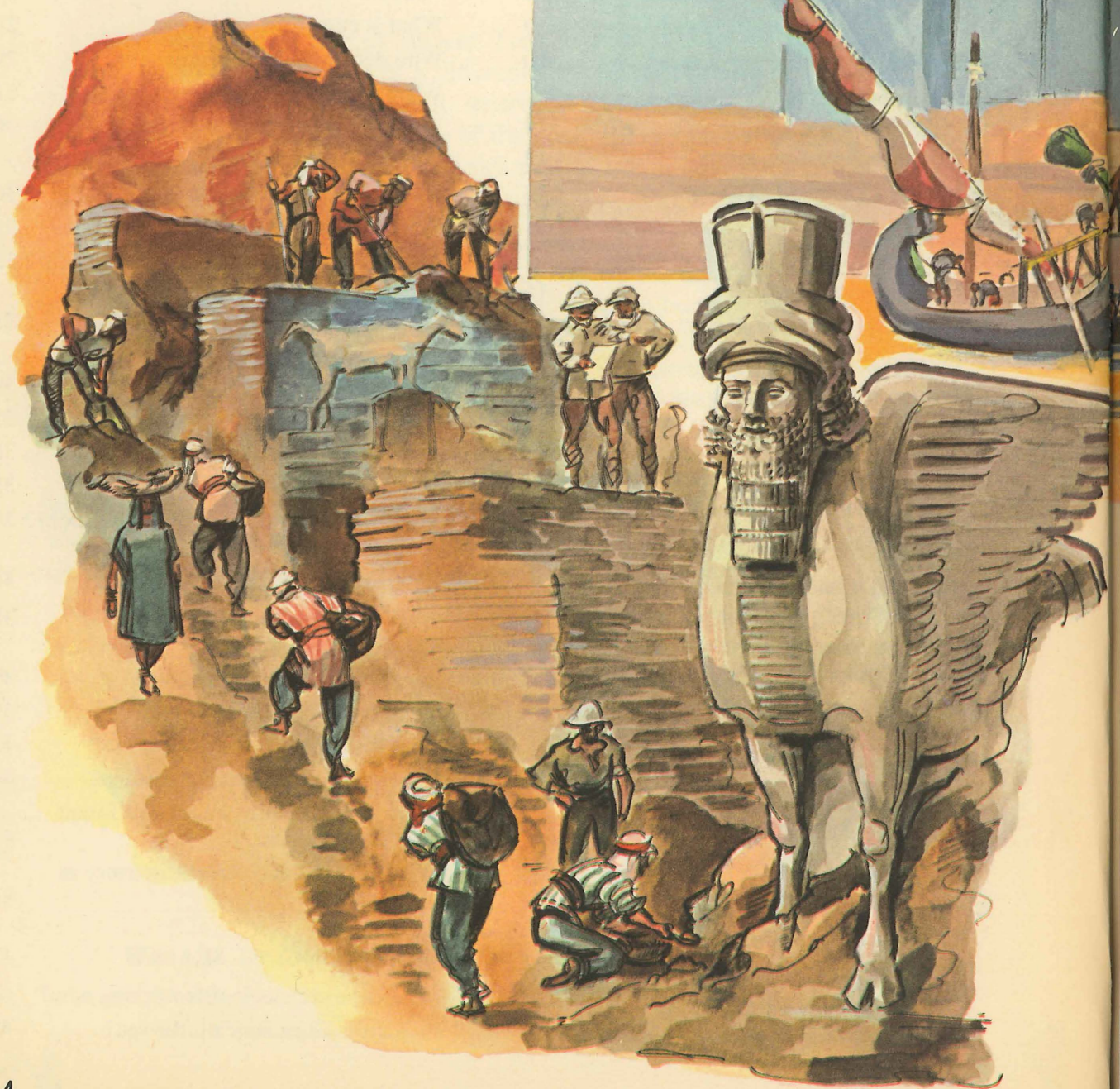
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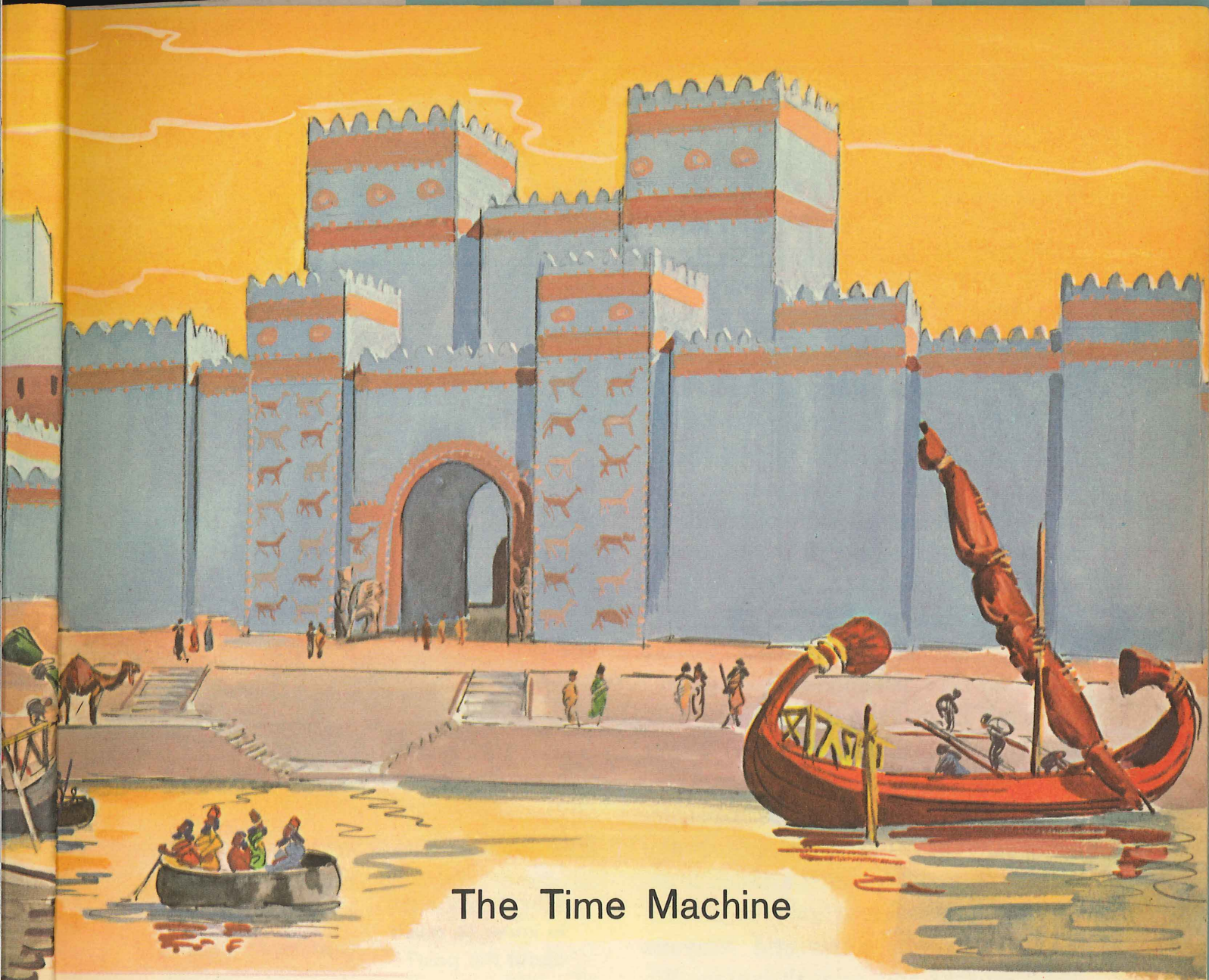
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In the middle of the last century a Frenchman, Paul Emile Botta, and later Austen Layard, an Englishman, started to dig in the mounds of Mesopotamia. Among their finds were winged stone bulls with human heads, clay cylinders with inscriptions and many artifacts. These finds came from a time which, up to this date, was considered legendary; now it became historical. Another discovery was the foundation of a palace of what was once the Assyrian city of Nineveh. At right is an artist's conception of the city from the time of the great Assyrian king, Sennacherib.





The Time Machine

For many thousands of years the ancient cities slept beneath hundreds of feet of earth, their once proud walls collapsed by destruction and decay, their rulers buried in golden tombs. Above the darkness, in the light of the sun, life went on, people moved about, civilizations rose and fell. As the years passed, other cities came into being above the ruins and, in their own turn, sank into oblivion. Finally, only the land remained, covering the work of man.

Then, thousands of years later, men began to dig through the layers of earth,

the layers of refuse, the layers of cities. They dug their way far into the past — a past of legends, heroes and mystery. They assembled the scattered bits of pottery, statues, kitchen tools, fragments of writing — and from them, reconstructed ancient civilizations. It was a look into the past, an understanding of the olden times, a revelation of man's early attempts to exist as a civilized being. This technique of discovering mementoes of the past and reconstructing the life of the ancients is now a skilled science — a “time machine” — called archaeology.

In Roman times, about 100 B.C., new buildings were often erected on the foundations of old edifices.

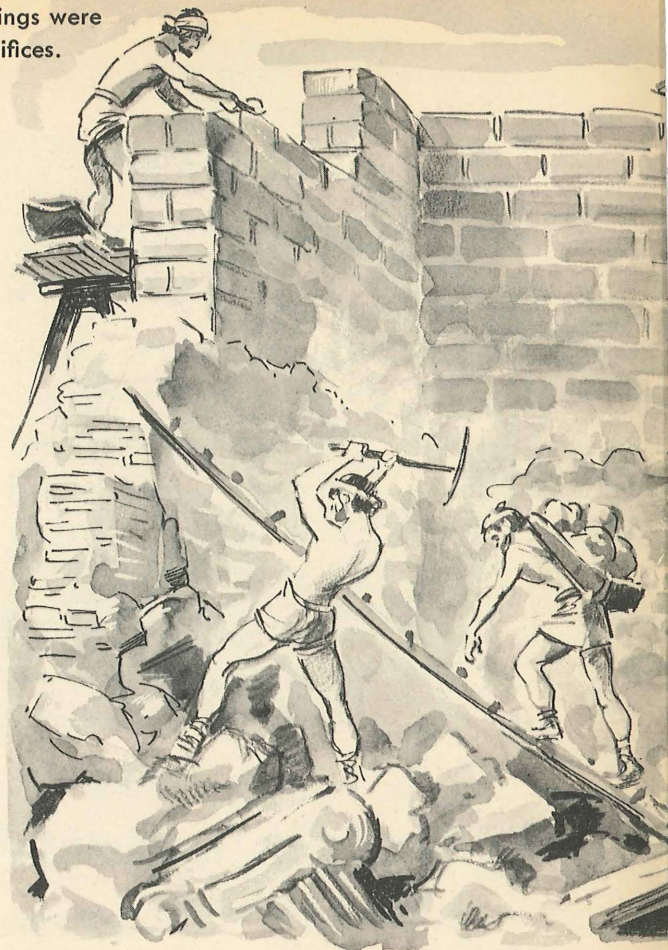
It has always been a wishful dream of writers and scientists alike to be able to look into or even visit the past.

Why do we call archaeology a time machine?

The events of recent centuries have been diligently set down by historians, and these records, plus many preserved pieces of art, tell a rich tale of life in this period. But the thousands of years before men systematically wrote down the occurrences of daily life were apparently lost to us — until archaeology became a science.

Of course, there is no such vehicle as a real time machine that will carry travelers back to the early days of civilization, or even one that will let us observe what the people of those eras did. However, the archaeological techniques that have been developed are the closest approach to such a fanciful device. We now know how the ancient Egyptians, Sumerians and Mayans lived, worked and spent their time. We know the shapes of their homes, the names of their gods, their daily customs and even the food they ate. We can reconstruct actual scenes of family life more than six thousand years ago.

In this sense, archaeology can be called a time machine.



The human race is curious about its beginnings. This is only one trait that distinguishes us from the animals.

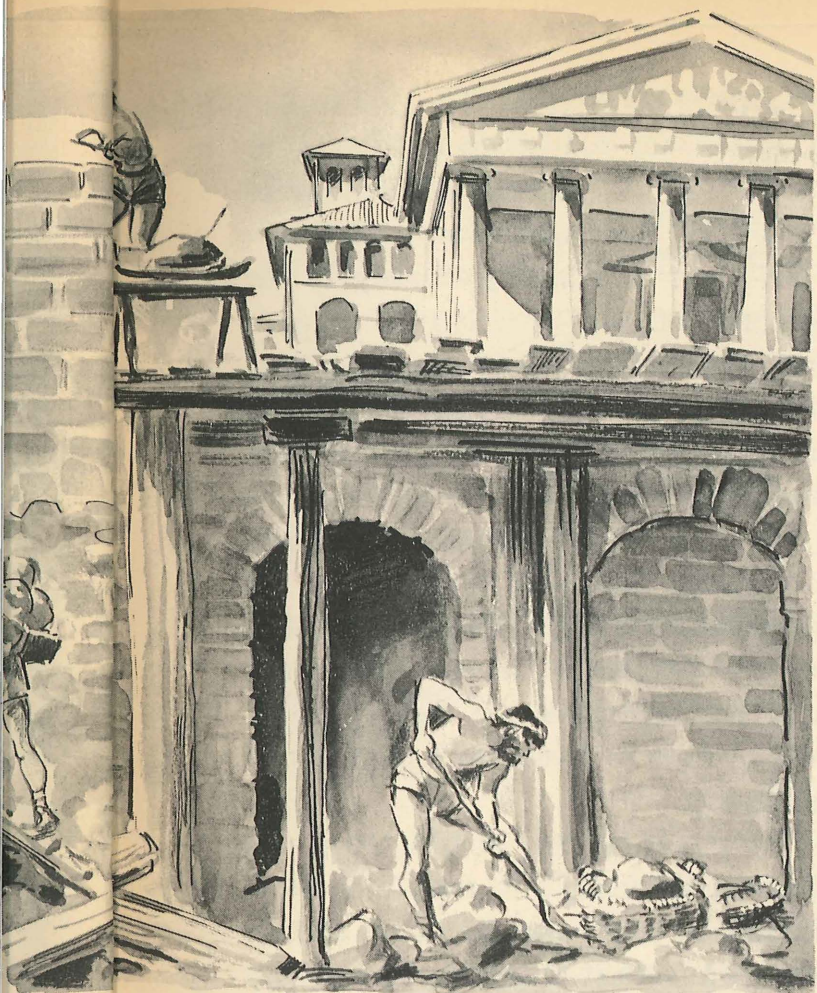
Why do we want to know so much about the past?

As members of the human race, we want to have a sense of continuity, a direct historical line throughout all of history. In knowing how we developed our customs, politics and religions, we can learn more about ourselves.

Tracing the development of archi-



Many tombs in Egypt were looted by robbers long before any scientist had a chance to enter the once sacred burial grounds.



itecture, sculpture, weapons and even kitchen tools tells us much about the growth of humanity on earth. In addition, the comings and goings of early civilizations tell us much about the movements of man from place to place.

We are an inquisitive species, intensely interested in where we came from; and a study of our origins may possibly help us to understand where we are going. Men therefore continue to search through the areas of the world where the ancient peoples lived.

There is another motive men often have for searching for ancient cities, and that is a lust for gold. The tombs of the rulers usually contain

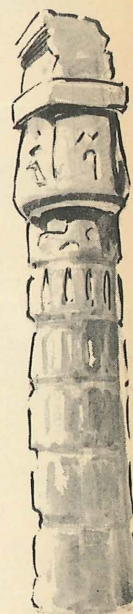
What is the other reason for seeking the lost cities?

many beautiful pieces of jewelry, such as golden crowns, cups encrusted with gems, and jeweled scepters and daggers. The ancients believed that in a life beyond death a man's soul needed his earthly equipment; so important men were often buried with all their worldly possessions. In some cases, their personal servants and slaves were added, as well.

In the time before archaeology became an exact science, many persons (and even official expeditions) dug into tombs and cities to find the treasures that lay there. This quest for riches led to important discoveries. But it also led to many disappointments, because when the scientists arrived, they often found precious relics scattered and broken in the mad search for wealth. This despoiling of tombs must have taken place all through the ages. It is perhaps the reason for the legendary curses attached to some Egyptian burial places. The Pharaohs, or rulers, of Egypt hoped to frighten those who would disturb the resting place of the dead. These curses obviously had small effect, for many Egyptian tombs have been found broken into and robbed.

The ancient cities disappeared under the ground over a long period of time, and in many different ways. In Egypt and other desert areas, shifting sands slowly covered cities that were abandoned. In other areas, the process was different. As buildings decayed or

How did many ancient cities become buried?



EGYPTIAN COLUMN

burned, others were erected above the foundations and soon a new city stood on top of the old. If the walls were made of baked clay or mud, the collapse of these materials added to the heaps of earth slowly rising over the buildings. The gradual collection of refuse and decayed matter also contributed to the covering of an entire city.

As a matter of fact, when excavations were begun in the city of London, England for a new subway, remnants of an old Roman settlement were found more than thirty feet below the surface of the ground!

When a city is abandoned, perhaps because of war, disease or migration, the natural vegetation of the area closes in. The growth also brings soil that slowly covers the foundations and finally most of the buildings, too.

Whatever the reason, most ancient cities became completely covered in time. The modern archaeologist must therefore learn how to play detective and search for clues.

There are many clues. The first is usually to be found in legendry. Greek myths and other early writings give roughly the general location of a city. Perhaps a harbor or river is described, or the position of a mountain, or even the distance and direction from another known location.

How is a buried city discovered?

In other cases, huge mounds of earth are found. These usually contain the remnants of a city. The Near East has a great number of such earthen piles, and archaeologists are steadily excavating them to reveal the handiwork of antiquity.

In places where mounds have not formed, farmers, with their plows, occasionally turn up fragments of pottery or stones that were unmistakably shaped by man. Or perhaps a river changes its course and washes away the earth that has entombed a city for thousands of years. Incidental discoveries such as these soon bring archaeologists.



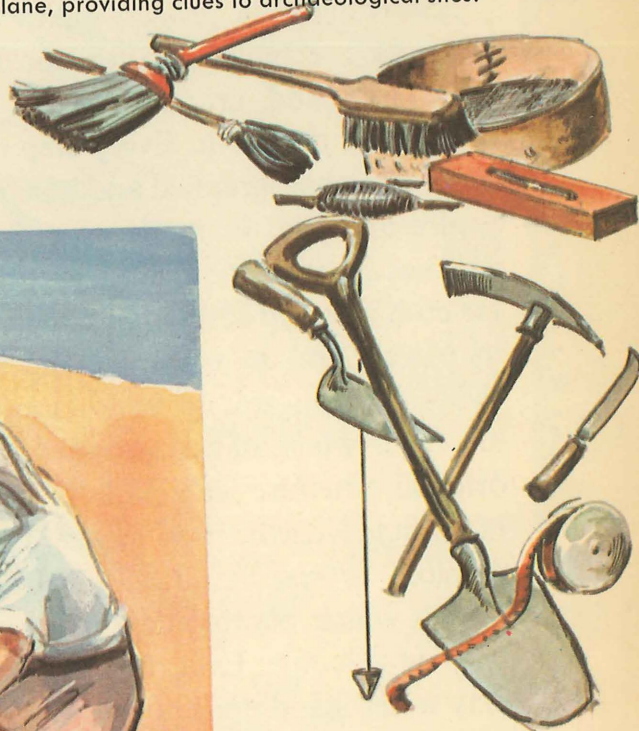
Recently, buried cities have been located from the air. The ground may appear perfectly smooth when one stands on it, but an aerial view can reveal many significant markings. Subtle shaping of the terrain often indicates the outlines of city walls. Barely perceptible depressions sometimes show the direction of an ancient road. Vegetation is known to grow differently when a stone foundation lies beneath.

When a lost city is finally located, a few experimental excavations are undertaken. Once a wall is found, the chief archaeologist goes to work. His first and most important job is to determine the area of the entire city or of a prominent group of buildings. Then, with the help of surveyors, he runs straight lines, along which the diggers operate.

Power equipment is hardly ever used. The excavation of a city is a slow and painstaking process. The diggers use



A surface that appears smooth may reveal irregularities from an airplane, providing clues to archaeological sites.



Above are some of the tools used in excavating. At left, a team of scientists dig, clean and catalog their finds in a preliminary study.



picks and shovels and work with extreme caution, for a hasty or misplaced stroke can destroy a priceless relic or an important artifact. Steam shovels and bulldozers would reduce ancient walls to a formless rubble, so the work must proceed by hand.

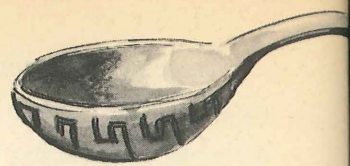
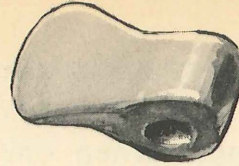
When the pick-and-shovel men come upon stones that seem to have been hand-shaped, the archaeology team is summoned immediately. Smaller shovels are brought out and used. The earth is carefully scraped away, piece by piece. Excitement mounts as more and more of the ancient world is revealed. As the work proceeds, the tools become smaller and more delicate. Soft brushes gently remove the last bits of dust and earth. A wall that had not seen the light of the sun for several thousand years is finally exposed.

Sometimes the process takes many years as one building after another is discovered and gradually freed from the grip of the earth. Every step of the process is photographed and labeled for future analysis. In many cases a wall will not stand alone. The ancient mortar crumbles and cannot hold the stones in place. And so elaborate means of reinforcement are devised. But there are times when all methods fail. If the original structure was made of clay or of rammed earth, it is sometimes impossible to restore. This situation is one in which photographs become extremely valuable. Even though the city may never stand upright again, the pictures taken during the excavation become the basis for artists' drawings and scale models.



CROSS
SECTION
OF LAYERS
OF EARTH

AX FROM EARLY BRONZE AGE



CLAY LADLE FROM LATE STONE AGE

Whenever utensils, tools, pottery or weapons are found at a site, the earth is first brushed away and the items are allowed to

How are the dug-up items cared for?

remain in their exact positions. A numbered tag is laid near each piece and a photograph of the area will later be used to reconstruct the culture of the time. Many times the position of a tool or bowl will furnish a clue revealing its original use.

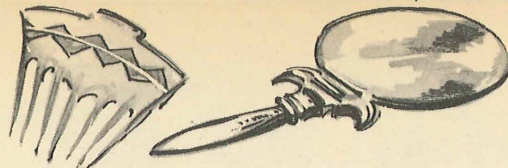
After pictures are taken, the items are carefully lifted and packed with extreme care. When they arrive at the museum or laboratory, the real work begins. Months are spent in scraping away the encrusted dirt of the ages. Artisans work their way down to the original material with an entire series of brushes, ending with a fine camel's-hair artist's brush. Tiny jeweler's picks remove sediment from the delicate grooving to be found in the metal work, and then chemical baths restore as much of the original color as possible.

In some cases, pottery in particular, only a handful of fragments remains, with perhaps a few pieces missing. To restore these items, a skilled artist is required, often a man with a profound knowledge of the period and the material used. He carefully fits the broken pieces together, fabricates new sections, matches color and texture, and often ends up with a complete restoration of the original artifact.

GREEK BOWL, ABOUT 700 B.C.



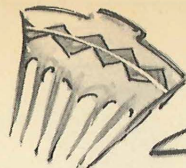
EGYPTIAN MIRROR, ABOUT 300 B.C.



EGYPTIAN URN, ABOUT 200 B.C.



GREEK COMB, ABOUT 500 B.C.



Step by step, the everyday items, the luxuries, the playthings, the money, the weapons, are restored and reburnished to provide a more personal awareness of the human race in the early days of civilization.

Dating a lost city has become a science

How do we determine the age of early cities?

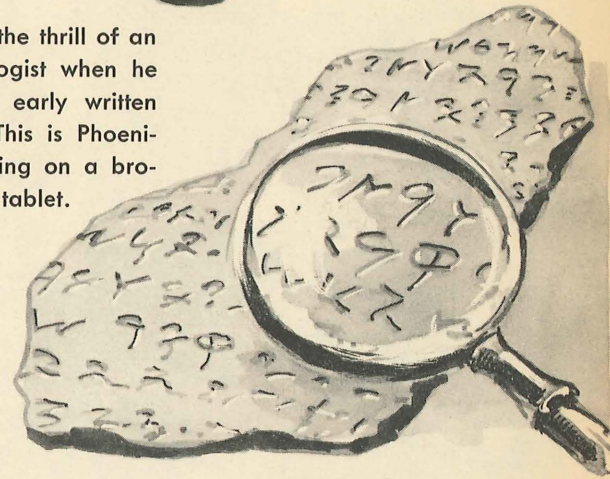
involving many factors. The most important is the ability to

decipher the ancient writings. Many early civilizations left permanent records of their time inscribed in clay or stone. By comparing events described on these tablets with known historical or geological happenings, a fairly accurate date can be ascribed to the findings.

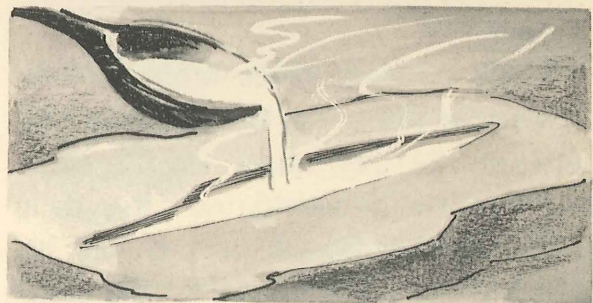
However, in many cases, the cities themselves left no such complete clues. What writings are found turn out to be merchants' inventory lists, bills or accounts of purely local events. These could cover a wide range of time, so the archaeologist must look to other methods.

Styles of architecture, building material, metal work, all lead to the establishment of a date. Pottery in particular offers many clues. The type of clay, the hardness of the baking, the materials used for the glaze, lead directly to a specific period. Each era had a different technique in the production of its objects, so when the scientist can locate pottery in good condition, much of his

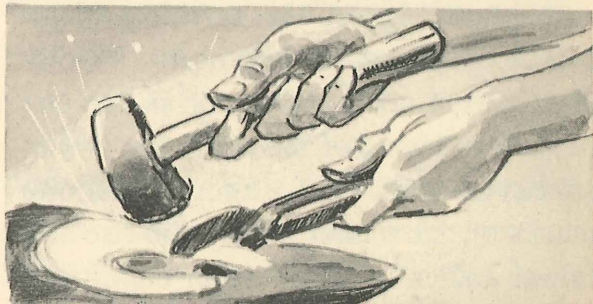
Imagine the thrill of an archaeologist when he finds an early written record. This is Phoenician writing on a broken clay tablet.



Shaping a flint, an arrowhead, in the Stone Age.



Molding metal for a spearhead in the Bronze Age.



Forging the iron for a horseshoe in the Iron Age.

A DOCUMENT IS PREPARED
IN THE HOUSE OF A
BABYLONIAN NOBLEMAN



Babylonian artifacts (above): a rolling seal, a clay tablet and its container, and a clay tablet on which the seal was rolled off, help to reconstruct life in Babylon.



CUNEIFORM
WRITING

job is done. But even in antiquity there were antique collectors. Often mixed in with the materials of one age are collections of older artifacts. Sorting the old from the less old has become a science in itself.

Trade between cities often affords answers. If there was active commerce between the city under investigation and another already-dated city, then artifacts from the known city can be found in the unknown. A simple comparison can lead to an answer.

A knowledge of the earth's geological development is important. Geologists have a good estimation of the age of various layers of the earth (or *strata*, as they are called). Ice ages left definite marks on the planet, as did the rise and fall of ancient seas. Weather conditions in the past produced specific soil conditions, and rivers left distinct layers of

sediment as they flooded and ebbed. When an archaeologist applies the geologist's knowledge of the earth's layers to his own work, he has another dating tool, for the type of soil upon which a city stands is very often a clue to its age. However, in recent years, a much more accurate dating method has been developed. It is called radiocarbon dating.

All organic matter contains carbon. Or-

**What is
radiocarbon
dating?**

ganic, or living matter, absorbs carbon during its life span and naturally ceases this intake

when it dies. This applies to such living things as animals, trees, fish and man.

But there is a special kind of carbon that the scientists call carbon-14. It is made in the thin upper atmosphere by the action of cosmic rays from the distant stars and our sun. This form of carbon is radioactive and slowly loses its radioactivity over many thousands of years, turning into ordinary carbon. Or-



Objects, once used in daily life in Greek antiquity, are today priceless collectors' items and museum pieces.



ganic matter absorbs carbon-14 also; once dead, it cannot absorb any more.

To discover the age of an ancient timber, perhaps used to support an Egyptian doorway, the scientist determines by analysis the amount of active carbon-14 remaining in the wood. He knows how much of this element can be absorbed each year, and he also knows that carbon-14 loses half of its radioactivity every 5,568 years. By comparing the amount of carbon-14 that is still active with the amount of ordinary carbon, he can work back to the period when the tree was cut down. The carbon dating method actually has an error factor of 30 years, plus or minus; but when an archaeologist is trying to find his way through thousands of years, 30 years one way or the other is not going to disturb him. The method will work all the way back to 30,000 years ago. Radiocarbon dating is now an established tool of the archaeologist, enabling him to pinpoint the time of an ancient culture.

Determining just how an early civilization went about its day-to-day tasks is one of the most fascinating aspects of the archaeological job. After the city has been excavated, the artifacts restored, the writing, if any, deciphered, a difficult and patient task begins. The mass of information and collection of items are like the pieces of an enormous jigsaw puzzle. But an archaeological jigsaw puzzle often has parts missing, parts that do not seem to fit anywhere, parts that look as though they came from some other puzzle.

**How do we
reconstruct
a culture?**

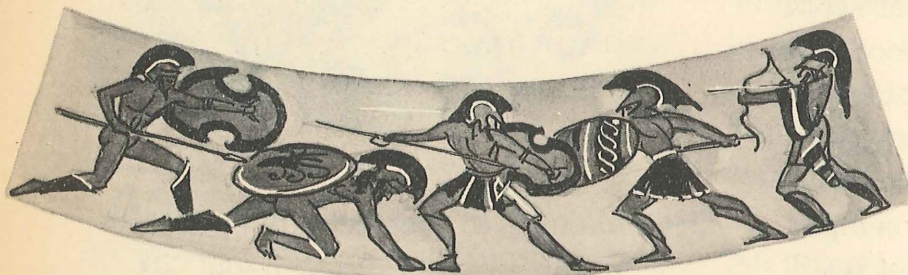
However, the archaeologist does not have to rely on his own ingenuity. He has a mass of knowledge and data gradually accumulated from earlier finds and he has the help of many experts. There are men who can determine the types of tools used in making weapons, pottery and clothing. Others are expert in calculating the uses of buildings. Some correlate the flow of trade and commerce between areas. The works of art are evaluated, the religious rituals analyzed, and even the climate of the period is determined in order to learn the cycle of crops used by the farmers.

Ancient legends and mythology play an important part in revealing the habits and customs of the early cultures, also.

We can now see that the senior archaeologist is the head of a team of precise and specialized detectives. He assembles the mass of data and arranges it into a complex and fairly complete picture. When everything is finished, we can learn the daily habits of the people, their food, money, schooling and method of worship.

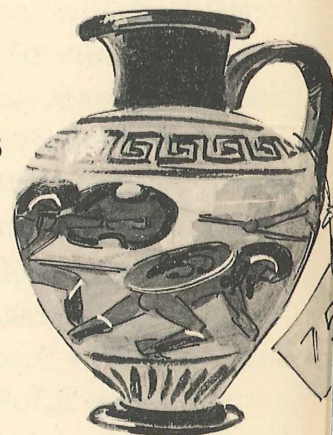
A full image emerges of a lost civilization, so real, so vivid, that it is as though we could look into the past.

The Cities of the Legends



Ornament on a Greek vase shows a battle scene from Trojan times.

Ancient history has bequeathed to us a set of stories of heroic achievement and mighty conquest. Superhuman figures strode the earth, mingled with the gods and performed great feats. The names are familiar — Achilles, Hercules, Hector, Medea, Jason, Ulysses and scores more. They sailed the seas, conquered giants, overcame dark magic and founded cities. Their names appear as the chief characters in the



dramatic legends that date from a time when man was beginning to expand his domain and trying to control the world in which he lived.

In the fourth century B.C., the Greek historian, Herodotus, collected many of these epic tales and tried to find out if they were based on truth. Most of the legends referred to cities — cities that were already lost, even in his time. Herodotus traveled about in the small world of his day, visiting ancient sites, taking notes, making observations and

deductions. In effect, he was one of the first archaeologists. His writings, studied centuries later, provided some of the first clues to the mighty cities of the legends.

Finding the answer to this question became the life work of Heinrich Schliemann. Born in 1822 in Neubuckow in the state of Mecklenburg, Germany, this son of a gentle pastor was exposed to the great adventures of Agamemnon, the fall of Troy and the entire pageant of Greek mythology as revealed in Homer's poetry.

As a boy, Schliemann lived in a dream world of ancient battles, mythical sea voyages, oracles and prophecies.

To earn a living, he became a bookkeeper, but the long drab pages of numbers and accounts could not dull his glowing vision of the ancient world. For him the legends were still alive and he slowly prepared himself to prove them. Studying alone in his room, Schliemann mastered a dozen different languages, and later added such difficult tongues as Russian and Arabic. In 1868, now independently wealthy, he left his work and followed his dream. He was sure Homer's epic poetry was based on fact. He was sure that the Gorgon shield of Agamemnon had existed. He was sure the legends were true. In part, they were.

The Trojan War is the most famous of the epics. The story of the beautiful Helen, the pitched battles, the chase around the city walls, the long siege and the fabulous

Trojan horse were part of Schliemann's dream. He went to find Troy.

According to the stories, Troy was located in what is now Turkey, not far from the Aegean Sea. Checking the description of the terrain in the *Iliad*, Schliemann went to the village of Bunarbashi, which seemed to be a likely site. It was on a high knoll with a flat plain in front. But the knoll contained several sharp ravines. Schliemann realized that, according to Homer's *Iliad*, Achilles had chased Hector three times around the city. This could not have been done at Bunarbashi. The cliffs were too steep. So, still believing in the legends, he went on.

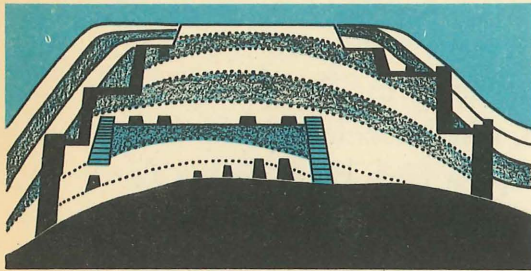
The next likely site was at Hissarlik.

Where was Troy found? Ruined masonry was to be seen poking through the earth, it was nearer the coast, and the area seemed better suited to the ancient battle. In 1870, Schliemann started digging into the huge mound.

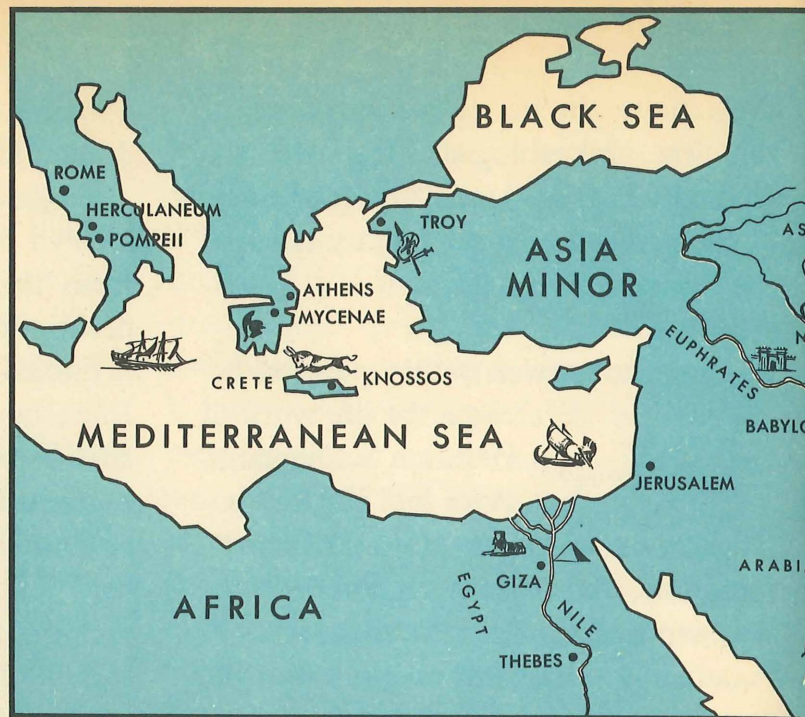
Great walls made of massive stone blocks began to appear. Doorways were revealed. Bits of pottery, weapons and ornaments showered from niches in the walls. Schliemann dug on. Then a surprising fact came to life. There were many Troys, one above the other!

As the years of digging went on, city after city was exposed to the air. Deeper and deeper into the ground the picks and shovels of the workmen thrust, finding tombs, statues, temples, stone benches. They were digging far back into time.





Above, diagram of the many "layers" of Troy. At right, map indicating the sites of ancient civilizations bordering the Mediterranean Sea.



Schliemann urged them on after studying each layer. He was looking for a sign of the massive gate, the famous horse of the Greeks and the epic battles. He was interested only in the Troy of legend. In all, he found nine cities.

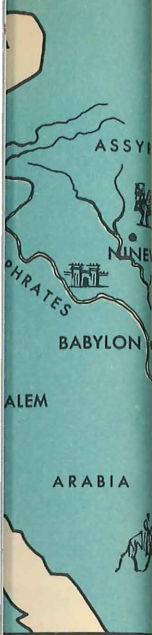
Schliemann thought the second city from the bottom was actually the Troy of legend. There he discovered traces of fire, a large gate, but most important of all, a great treasure—golden bracelets, goblets, plates, earrings, even golden thread. They were packed in boxes inlaid with ivory. He was sure this was the treasure of King Priam, carefully packed and ready to be carried away in a retreat from the burning city. With great haste Schliemann gathered this hoard of the ages and sent it to his home. He had found Troy!

But he hadn't! The Troy of the legends was really at the sixth layer from the bottom. He had discounted it on the

way down. Schliemann's Troy was later dated as having existed a thousand years before the Greek heroes arrived. It was over four thousand years old, and Homer's Troy lay in ruins many layers above!

The oldest layer represents a completely primitive settlement. But it is a city, and probably one of the oldest in history. The stone walls were crudely cut and held together with mud. This layer contained stone tools, early pottery and a few ivory ornaments.

The next-to-the-bottom layer, which Schliemann believed to be Troy, was still crudely constructed, but the houses were better designed, often with vestibules and separate rooms. It was surrounded by a thick defensive wall with huge gates. The pottery shows the use of paint and advanced design. Bronze tools and weapons were found and a great many gold and silver ornaments.



The third, fourth and fifth layers from the bottom comprised an interim period of simple village life that followed the burning of the second city.

City number six turned out to be the Troy that Schliemann had dreamed of but passed by. It contained temples and complex buildings, but no sign of the legendary wooden horse that the Greeks were said to have used to gain an entry past the gates. The city was dated by comparing its pottery with that of other cultures in the world of time.

The seventh city, like the sixth, was destroyed in war. It remained in ruins until Alexander the Great built an eighth city. This one was part of the Golden Age of Greece, the period of the philosophers and the fine works of art.

With the advent of the Romans, a new city—with an immense theater and large surrounding buildings—was constructed by the conquerors. It lasted un-

til the year A.D. 5, when the forces of nature took over and covered the long succession of empires. Man's early handiwork then vanished until a dreamer decided to see the birthplace of heroic legendry.

Schliemann decided to follow the course of Homer's *Iliad*. It was written that Agamemnon, after destroying

Troy, returned to his home at Mycenae in Greece. The conqueror was greeted with death. His wife, Clytemnestra, and the usurper Aegisthus planned and directed his murder. Schliemann was so entranced by the heroism of Agamemnon that he was determined to dig at the site of Mycenae to find the man's grave.

Mycenae was easy to find. The site had not been disturbed for thousands of years, and the famous Lion Gate

What was discovered in Mycenae?

A hero is put to rest. An artist's conception of a burial in Trojan times, showing the city in the background.



stood in the open for all to see. In 1876, Schliemann began to dig. He found vases that had once contained oil, and a circular agora, or market and assembly place, where orators addressed the ancient Greeks. Then he found a circle of graves.

They contained the remains of ancient royalty. One after another the dusty skeletons were removed. Each one was found to be adorned with golden ornaments and jeweled trinkets. Schliemann was convinced that he stood at the grave of the legendary Agamemnon, and he announced his discovery to the world. But as with Troy, he was wrong. These ancient people were indeed royalty, but later dating methods proved that they had lived at least four hundred years before the time of the heroic Greeks. However, Schliemann's mistakes do not diminish his

importance as an archaeologist. He opened the cities of legend to the modern world and also established sound archaeological techniques.

Schliemann continued his work at My-

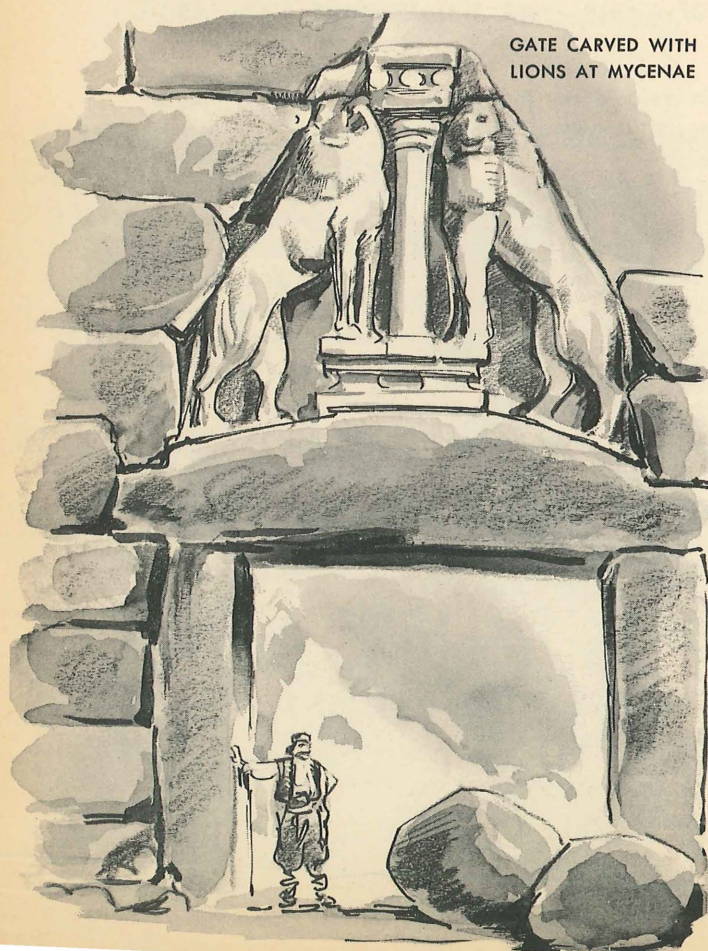
**What major finds
were unearthed
in the 1950's?**

cenae. He found great palaces and gates made of stones so large that

only a legend could explain how they were moved. The one-eyed giants named Cyclops were supposed to have put them in place. Stone tombs with vaulted ceilings, an engineering feat unparalleled for that time, were also unearthed.

In the 1920's, Alan J. B. Wace made a series of discoveries at the Mycenae site that carried the city back to 1600 B.C. Then the diggings were left alone until 1950, when Wace returned. He went deeper and unearthed a new series of houses and graves. The city seemed endless. Each search revealed new riches. Bronze swords and daggers with golden hilts, ivory inlaid shields, beautifully inscribed vases, all came to light. Mycenae was revealed as a wealthy city, perhaps at one time the leading center of ancient Greece.

In 1952, the Greek Archaeological Society took over the work and spent some years in cleaning the debris from the city. Their scientists began to discover even more. It seemed that Mycenae would continue yielding its treasure to the modern world. But one discovery was made that is worth more than the hoard of precious metals and jewels. It is a drab piece of cloth, originally used as a wrapping for daggers. This modest bit of material is now a

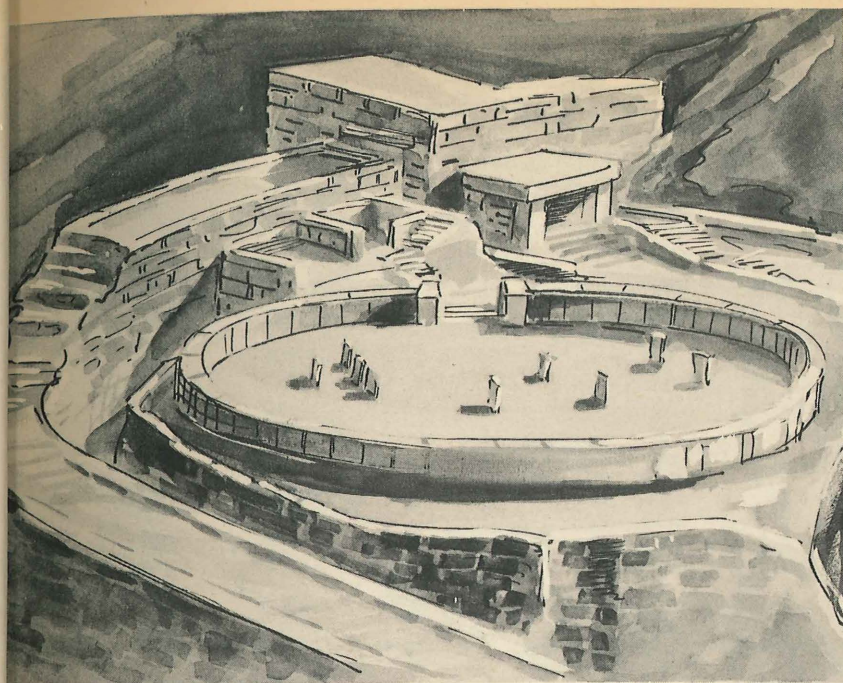


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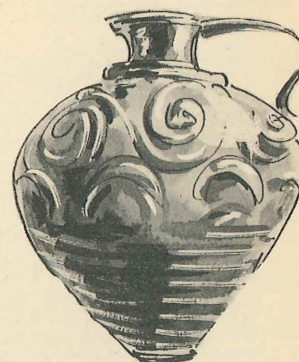
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Next to the castle at Mycenae was the burial ground. This is an artist's conception of how it may have looked.

Treasures found in Mycenae. At right, a vessel in the form of an animal's head; below, a face mask of gold and a silver pitcher.



priceless relic. Dating from 1700 B.C., it is one of the most ancient items from the world of storied heroes.

Many more cities of legend were discovered as archaeological teams swept through Greece and the

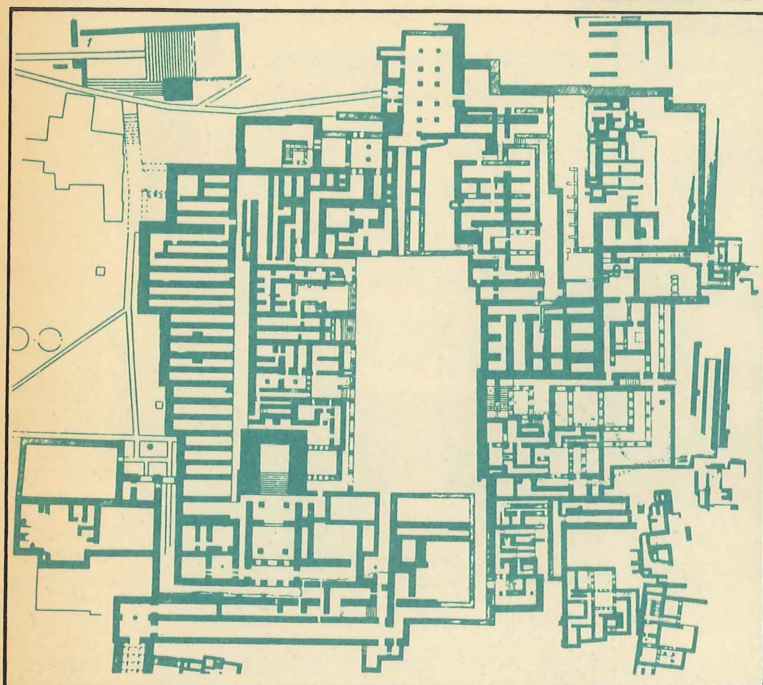
Have any other cities of legend been found?

Near East, but two deserve particular mention. The first is Knossos, on the island of Crete, and the other is the city of Gordion.

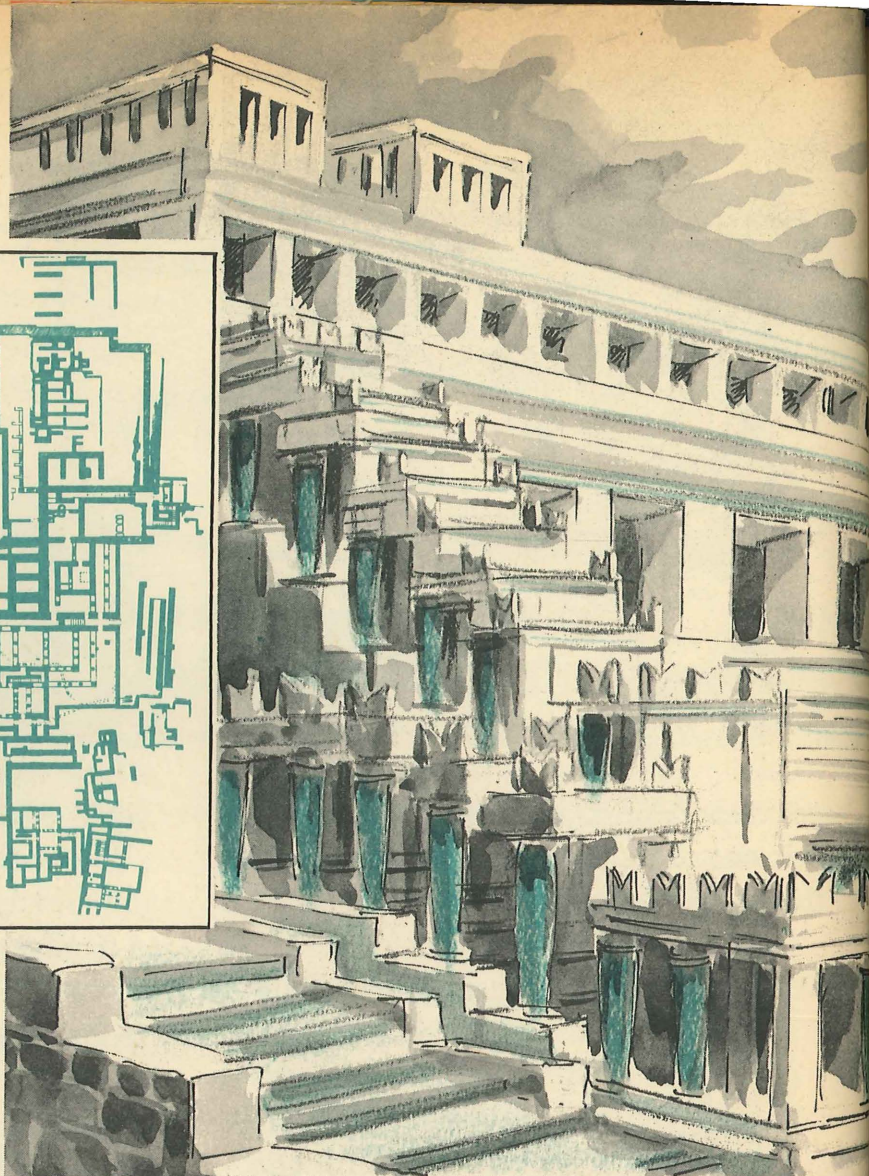
In 1900, Sir Arthur Evans went to Crete to research some of the ancient languages. There he found indications of a large buried city. Digging was easy, as the city was not too deeply buried, but it took some forty years to excavate the entire area completely. Some of the buildings were as large as those we build today, or even larger. The main palace was five stories high and almost half a mile square! In this massive building Evans found a series of winding, twisting passageways. From some of the inscriptions on the walls he real-

ized that he was in the famous labyrinth from which Theseus was saved by Ariadne. The center of the labyrinth was supposed to house the dreaded Minotaur. Here was another legend come true. This was assuredly the palace of King Minos, and Evans named the people Minoans.

Great wealth was discovered, for the Minoans ruled their part of the ancient world ruthlessly. They plundered and pillaged every civilization within sailing distance and carried the spoils back to Knossos. Evans found great amounts of precious metals, elegantly carved rock crystal, and the throne of King Minos himself. It is a massive affair, carved out of a single piece of polished gypsum. The walls of the palace rooms are covered with magnificently painted murals that show much of the life of the city. One of the major sports was bull wrestling, a sport attended by all the nobles of the city.



At the right is a reconstruction of the palace of Minos, and above is a floor plan, which explains the basis for the legend of the labyrinth.



Knossos is easily dated back to before 2000 B.C., a remnant of a civilization that was as despotic as it was artistic. The city perished in a raging fire, probably set by invaders who came to overthrow the Minoan tyrants.

Gordion, deep in the Asia Minor section of Turkey, has two famous legends to remind us of its existence. It was in this Phrygian city that Alexander the Great cut the Gordion Knot with a single stroke of his sword.

Why was Gordion famous?

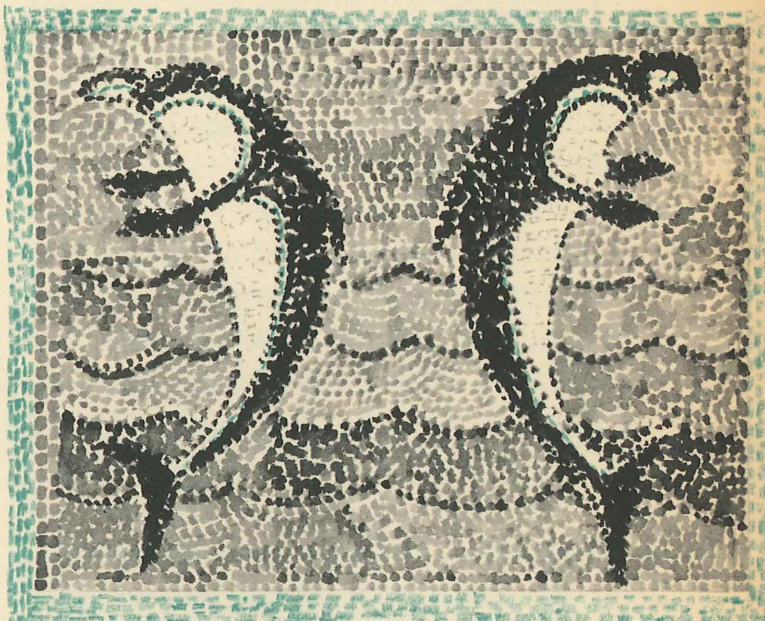
However, even more famous is the story of Midas, the king with the golden touch. Midas ruled ancient Gordion in 800 B.C., and if he did not have the



golden touch in reality, he had it by force of arms. This city of Midas contained some of the richest treasures to be found by archaeologists. Gordion ruled the Middle East in its time and must have exacted heavy tribute from all cities in the area. Mosaic floors, inlaid wooden screens, polished bronze and gold-hafted weapons were discovered amidst the rubble of the ages. Work still goes on at Gordion, work that was begun in 1900 by Gustav and Alfred Koerte, and it is now being continued by a team from the University of Pennsylvania.

What we have learned from the cities of ancient legends is that the old stories were based on truth, truth that probably became distorted and exaggerated with time. Heinrich Schliemann's dream of the mighty heroes of Greece is slowly being awakened into reality. Homer's heroes *did* live, they *did* perform mighty feats, but they were still men — not

demigods. Their deeds were preserved in brilliant murals, statues and epic poetry; and because of the vision of Schliemann and his followers, we can now see the cities to which Achilles, Agamemnon and Jason returned in triumph. They are ancient, but no longer buried, no longer lost. And their proved existence now gives us a firmer link with the past.



A mosaic floor from Gordion at the time of Midas, the king with "the golden touch." Excavations were begun there in 1900.

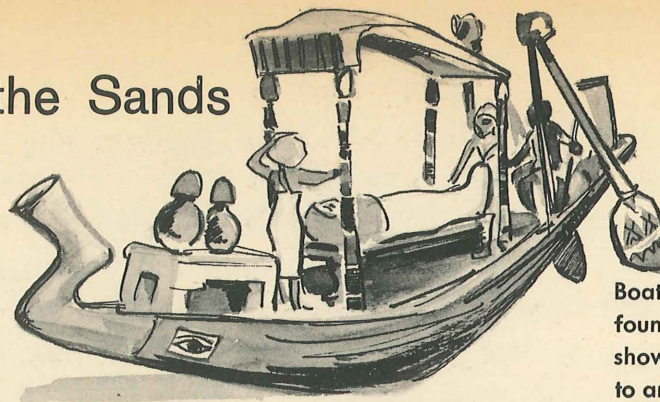


A mural on a wall of the palace of Minos depicts somersaulting on the back of a bull, a sport practiced by men and women of Crete.



Tall, beautifully decorated jars were used for storage purposes by the people of Knossos.

The Cities of the Sands



Boat model of a "death ship" found in an Egyptian tomb. It shows the dead being carried to another world.

In the arid regions of Egypt, Israel, Jordan, Iraq and other sections of the Middle East are the remnants of settlements of earliest antiquity. These cities go back to the times before the Greek legends. Some stood proudly in the Biblical days and ruled over empires that once encompassed all of the civilized world. As these ancient kingdoms were conquered by later peoples or bypassed by newer trade routes, the once powerful cities were abandoned and slowly covered by the shifting sands.

Egypt has always been a land of archaeological wonders, even in the days of the Greek and Roman empires.

Why was there so much interest in ancient Egypt?

Egyptian artifacts were known to the people of those early periods, and the memory of Egyptian power and tyranny was still quite close.

But the greatest reminder of the majesty of the empire stands near Memphis on the Nile — the group of pyramids and the Sphinx, one of the wonders of the world. Rising out of the desert sand, these monumental structures were known to all the peoples of the Mediterranean. Although they were partly covered with sand, their great height allowed them to be seen for miles. Three pyramids stand near each other, mas-

sive examples of a perfect geometric form. Close by is the crouched figure of the Sphinx.

The pyramids are the tombs of the ancient Pharaohs of Egypt. The largest, the resting place of Cheops, stands 480 feet high and 750 feet square. It took twenty years of back-breaking toil to cut, move and put into place the more than two million stone blocks that make up the structure. One hundred thousand slaves lived and died as they painfully dragged the two-and-a-half-ton blocks across the sands and lifted them into place. Cheops wanted a tomb that would last forever. It may well do so.

Why were the pyramids built?

Although not as tall as the pyramids, the Sphinx presents a picture of massive grace. It is a religious symbol, having a human head on the body of a crouched lion. Between the fierce paws is a temple that seems dwarfed by the calm and enigmatic head towering above. The Sphinx represented the mystery of the gods worshiped by the ancient peoples, and its symbol was worked into most of the legendry of the past.

What does the Sphinx represent?

What is even more fascinating about

this great statue is that it was carved from a single, huge piece of stone!

These monuments are among man's oldest works still in existence. They stand proud and clean, their sharply sculptured lines etched against the sky, and it is hard to realize that man's work has lasted so long. The pyramids and the Sphinx are about five thousand years old! They were erected some three thousand years before the birth of Christ and serve to remind us of the ancient and powerful Egyptian dynasties that once controlled the world.

There are really no lost Egyptian cities, no legendary habitations that gave rise to fantastic legends and had to be searched out by archaeological detectives. The sites of the ancient Egyptian cities are all known. Basically they are on the same sites as the modern cities. Egyptian culture never actually had a "lost period." Their culture, from earliest times to the present, has flowed like a steady stream, one culture displacing another in historical succession.

That is why the tombs are so important. They contain the relics and art works of the ancient cultures, and it is through them alone that we can know anything of the great days of the royal dynasties. Since the Pharaohs were buried with all their worldly goods, the remarkable preservation of these items tells an almost complete story of the period.

How old are these Egyptian monuments?

Most important was the development of the hieroglyphic form of writing. It consists of a series of stylized pictures that represent phonetic symbols — actually a sort of alphabet. The Egyptians were addicted to writing. Literacy was a valued asset and almost every wall and tomb is covered with hieroglyphics.

The presence of the Egyptian tombs was known all through history. The writings of Herodotus, who

How did Egyptian archaeology get started?

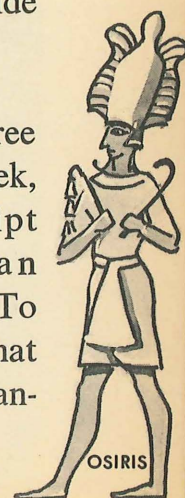
had seen the pyramids, were a constant spur to men interested in the ancient world. But the greatest stimulus came much later with Napoleon's campaign through the Middle East in 1789. He wanted to control that part of the world and open a route to India. But this military genius must be given credit for more than conquest. He knew of the mighty past of Egypt and desired to learn more. Accordingly, he equipped his army with a corps of scientists and scholars whose function was to unravel the mystery of the desert monuments.

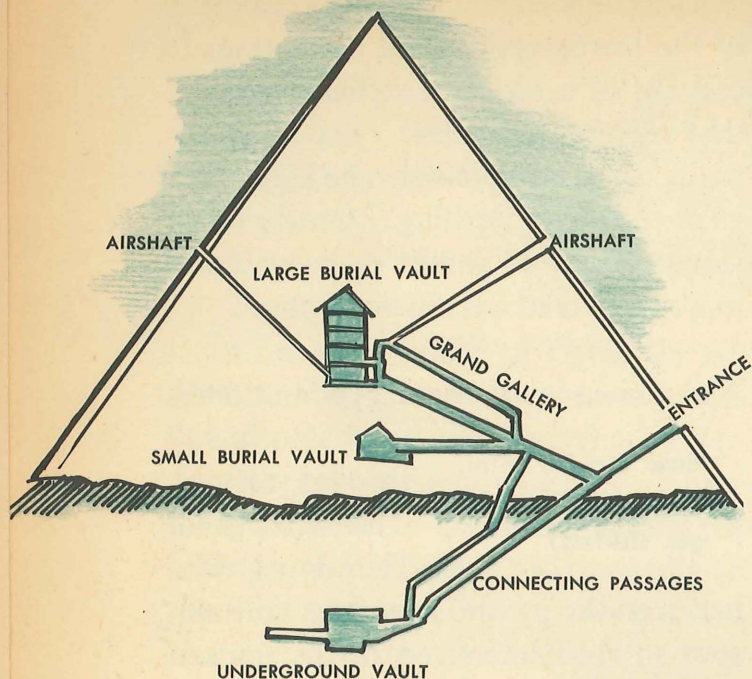
Many beautiful carvings and other works of art were brought back to Paris after the campaign, but the most important was a large slab of black basalt known as the Rosetta Stone. One side was covered with writing.

The writing on the slab was in three languages: Greek, Demotic script and Egyptian hieroglyphic. To scholars it soon became apparent that the message was the same in each lan-

What was the importance of the Rosetta Stone?

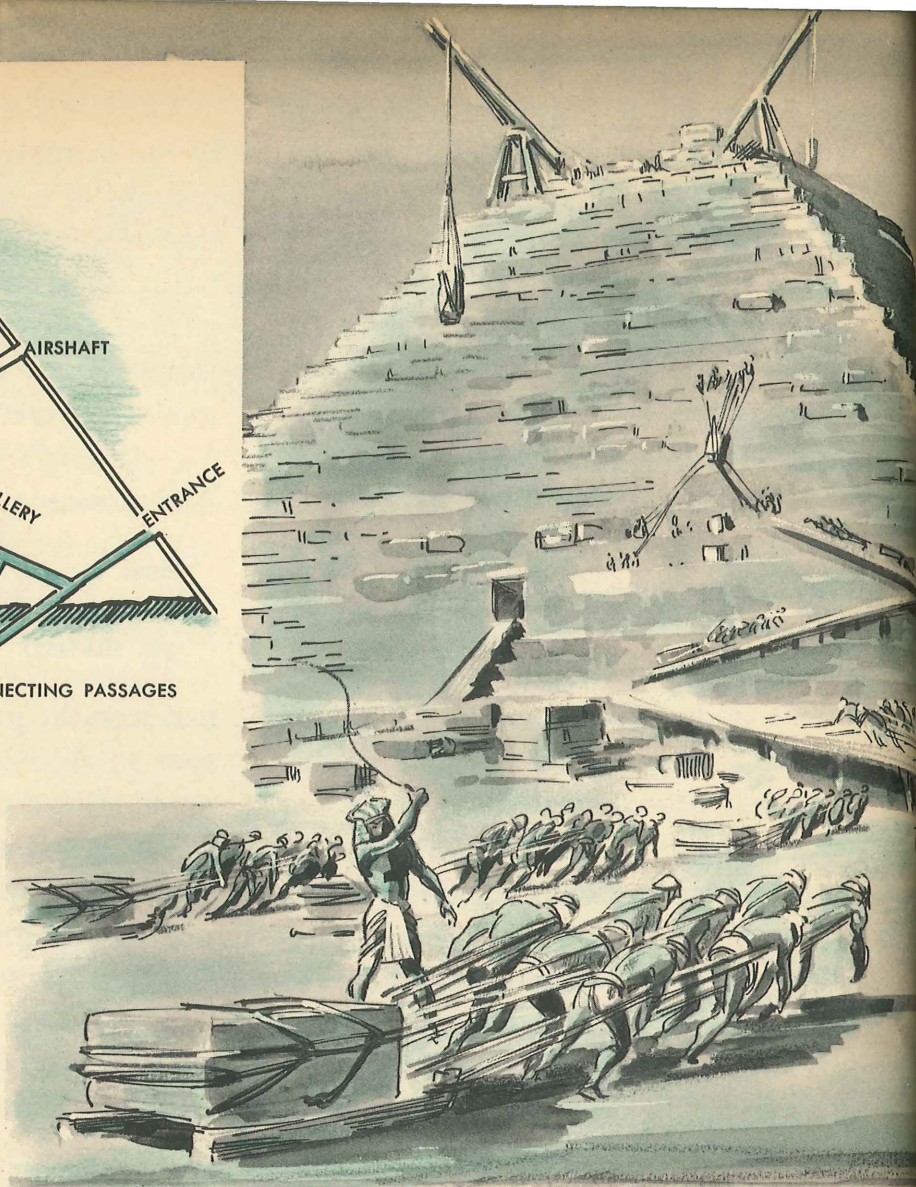
EGYPTIAN HIEROGLYPHIC WRITING





Cross section through the pyramid of Cheops.

Thousands and thousands of slaves were used to build the big pyramids.



guage and that the known Greek could become a key for deciphering the Egyptian. Many men worked long hours trying to find a relationship between the languages, but their reasoning was faulty. They all believed the hieroglyphics to be pure picture writing. It was an understandable error, since the symbols seemed to represent actual things, but it was Jean Francois Champollion who, in a flash of insight, realized that the symbols were phonetic and represented sounds and ideas. By 1821, he had worked out the message on the Rosetta Stone and then began to prepare a complete Egyptian grammar.

With the mystery of the Rosetta Stone solved, a new tool was ready, and archaeologists were ready to reconstruct the civilization of ancient Egypt.

Archaeologists began to dig in the most obvious places — the sites of the tombs — in order to learn more about Egypt. A series of researchers gradually contributed to the store of knowledge. Belzoni, Lepsius, Mariette, were some of the men who dedicated their lives to unraveling the great web of confused information about Egypt.

Where did men begin to dig?

Two men made astounding discoveries in the tombs. One was William Flinders Petrie and the other was Howard Carter. Both found kings. Petrie first dug into the pyramids at Giza in 1880 and then went on in 1889 to a nondescript pyramid near the Nile. This unassuming monument yielded to his efforts, and he came upon the burial place of Amenemhet III, one of the great leaders of Egypt in 1800 B.C. Not only was the discovery important in itself, but it also led Petrie to devise a system of classifying and grouping archaeological finds. This system permits a clear understanding of the culture, and it has become a standard device of all archaeologists.

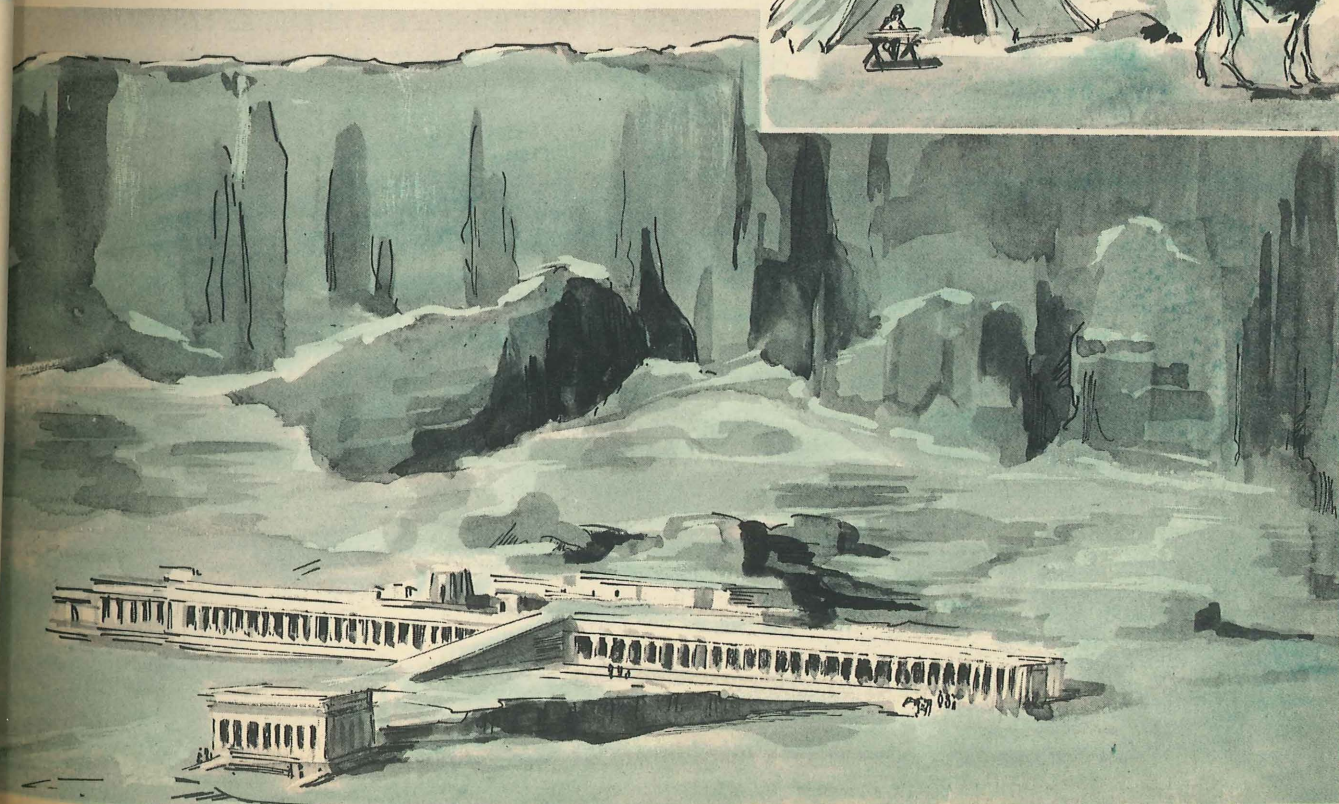
However, the most fascinating discovery in Egypt happened in the area called the Valley of Kings. There, across the Nile from Luxor and Karnak, was a whole valley of tombs and

temples, some carved into the rocky face of the cliffs. In 1914, Howard Carter and his sponsor, Lord Carnarvon, came to the valley on a specific search. They were looking for the tomb of famed Tutankhamon, the eighteen-year-old ruler of Egypt in 1350 B.C.

Frontal view of the Sphinx. The people in the foreground offer an indication of the structure's size.



The temple and also the tomb of Hatshepsut from the eighteenth dynasty, near the Valley of the Kings.



After many false starts in the valley, most of which resulted in opening tombs that had been robbed thousands of years earlier, they started digging into the rocky bed of the valley itself. The year was now 1922, and the result of those first shovel strokes was perhaps the richest find in all archaeology. Carter had struck the outer door of Tutankhamon's last resting place. He knew what he had found. The hieroglyphics on the door spelled the name clearly, and he began excavating systematically. It took a great deal of time.

Tutankhamon's tomb was revealed as a series of underground chambers, one leading to another, with sealed doors between them. Carter was dismayed when he found that some of the outer rooms had been ransacked, but he carefully and painstakingly went on. Each room was filled with remnants of the period — some made of alabaster, ivory or solid gold. He found a gilded throne, impressive statues and literally piles of precious gems, but the greatest

What was Tutankhamon's tomb like?

a series of underground chambers, one leading to another, with sealed

moment still remained. Through the rubble shone a golden door. Carter forced it open with extreme caution and his electric lamps flashed into a completely golden chamber. This was still not the end of the search. Set within this room was another golden chamber — and still another within that! It was similar to a series of boxes nested inside one another.

The third chamber was the end of the long journey. It contained the sarcophagus of the long-dead king. Gleaming dully in the light, it was a great mass of pure yellow quartz, beautifully carved from a single block. The lid was polished rose granite.

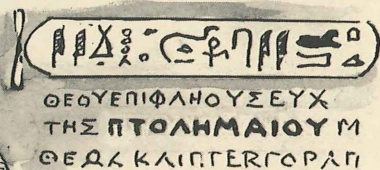
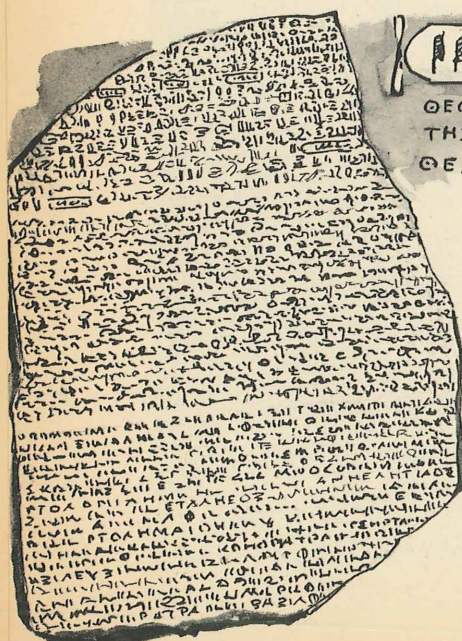
Block and tackle raised the heavy stone cover and Carter saw a golden effigy of the king. This was merely a lid to a second coffin. Tension mounted as this lid was lifted. Inside was the final coffin, a heavy casting of solid gold. Within it lay the preserved mummy of Tutankhamon, the boy Pharaoh. A king's ransom in gems and golden trinkets showered to the floor as Carter unwrapped the cloth, but that was not all. In an adjoining room were cases and cases of similar treasures.

This was certainly the richest find in the history of archaeology — rich not only in jewels, but also in the carefully preserved information about the ancient dynasties. Egypt was beginning to yield its treasures, but the search into time led also to other places.

The Mediterranean Sea comes to its eastern end surrounded by a great arc of land. Turkey looms to the north, and around to the

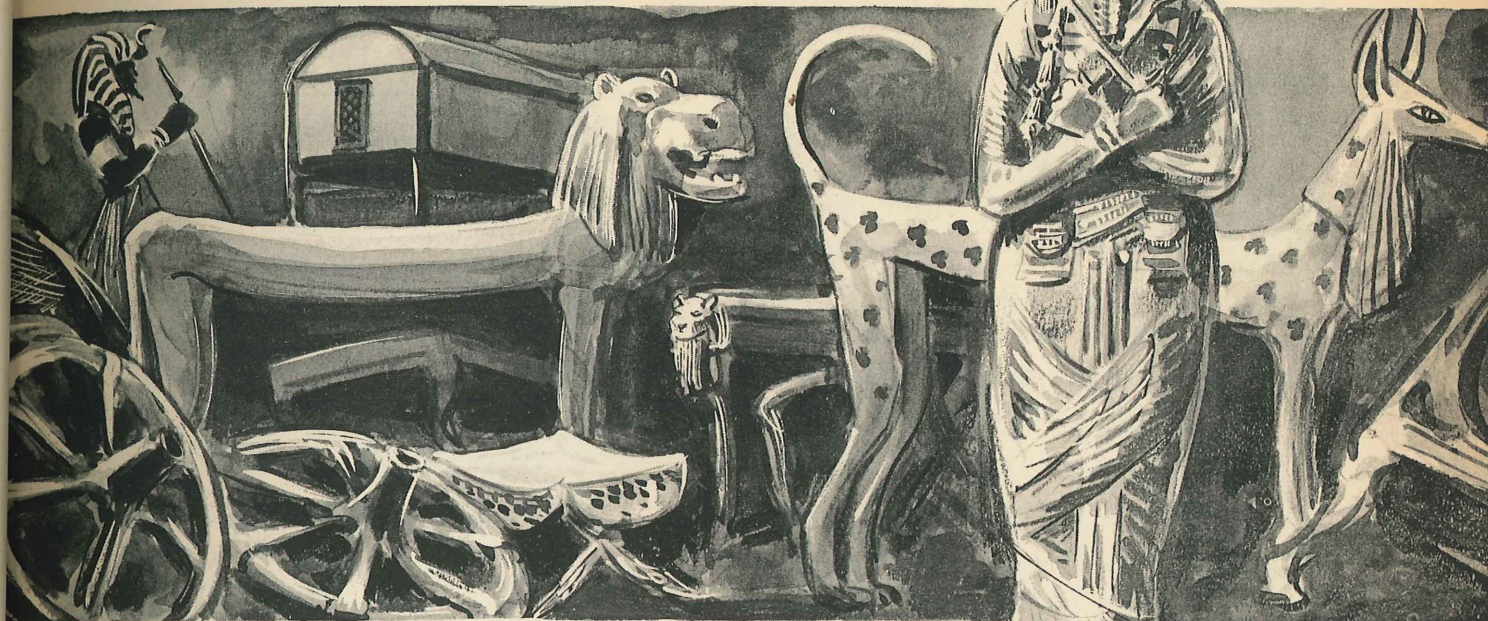
What is the Fertile Crescent?

eastern end surrounded by a great arc of land. Turkey



During one of Napoleon's campaigns, the Rosetta Stone, the key to much of Egypt's writing, was found. In the inset above is the name of King Ptolemy written in hieroglyphics and in Greek.

The interior of Tutankhamon's tomb revealed treasures of incredible riches. Three coffins were found by Carter, one within the other, and the third, superimposed here over the picture of the tomb's interior, was of solid gold. The embalmed body of the young Pharaoh was preserved in it.



south are Syria, Iraq, Israel and Egypt. Farther to the east lies the larger land mass of Iran. This area is the Fertile Crescent, quite possibly the original home of Western civilization. In earlier times, most of it was called Mesopotamia. It is watered by the Tigris and Euphrates rivers as they flow toward the Persian Gulf. In ancient days the area was truly fertile, with the drainage from the mountain slopes irrigating the low valleys.

This is also the land of the Bible, the land of the earliest stories, the land of the beginnings of human culture. Great civilizations flourished here long before the heroic Greeks set forth on their journeys. People traded with each other, etched their memories on stone tablets and built mighty cities—all this, long before the Pharaohs of Egypt erected the pyramids.

Today most of the Fertile Crescent is fertile no longer. Through the cen-

turies, floods, erosion and poor crop management have transformed much of the area into barren wastes. The center of civilization moved to greener areas, and the remnants of the earliest kingdoms of man are covered by sand.

Three great civilizations rose and fell

**What peoples
lived in the
Fertile Crescent?**

in this area during
the dawn of human
history. The first
can be dated well

beyond 4000 B.C.! The people were the Sumerians, and no one knows exactly where they came from. They were followed by the Babylonians and then the Assyrians, and the names of the cities and even some of the events can be found in the Bible. These were the

times of earliest antiquity. Thousands of years separate our mechanized civilization from these cultures, but they were the early efforts in a long succession of attempts at living together.

The Middle East is the scene of much

Are there any traces of these people? archaeological work today. Many sites offer opportunities for exploration. Huge

mounds can be seen, and crumbling walls sometimes protrude above the dusty landscape. Here and there massive statues, some of men, some of sacred animals, have remained unimpaired by the years.

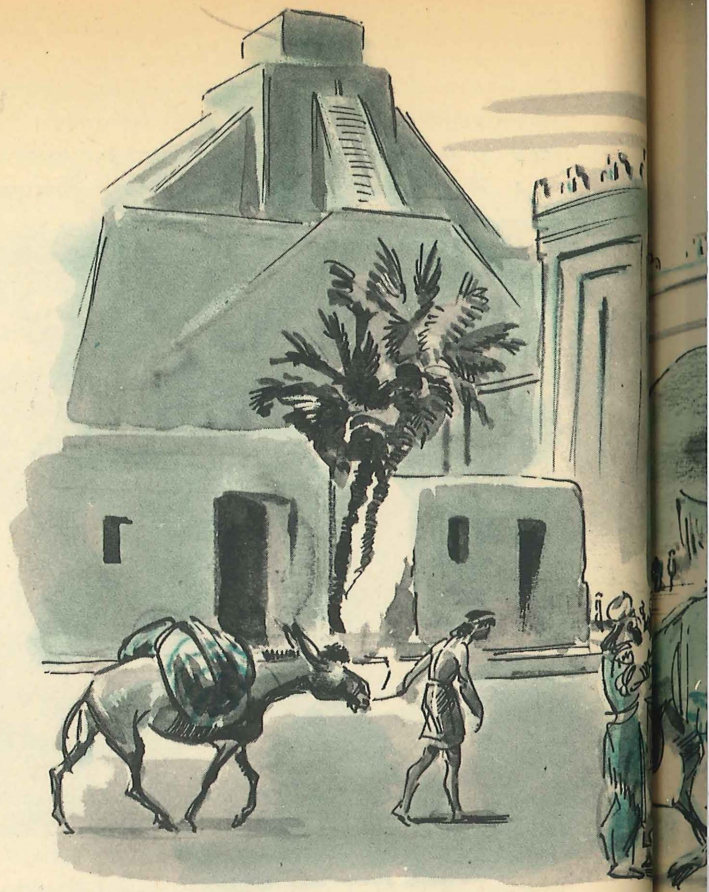
There are large tablets covered with cuneiform writing that tell us of ancient battles that raged across the early world. Others relate business dealings, and some contain poetry cast in the form of heroic ballads. These describe the exploits of men and the religious stories of a people struggling to understand a savage world.

The discovery and excavation of these earliest cities of our history is perhaps the most important archaeological work ever done. These cities represent the beginnings of the development of man as a complicated social being. Before this there were no cities — only vague settlements, wandering tribes and primitive societies using crude tools.

There were many cities scattered through the Fer-

What were some of the important ancient cities?

tile Crescent, and the clues that led to the important ones were found in the Bible and ancient legendry. Cities such as Ur,



Babylon, Assur, Nineveh, Nimrud and Jericho to name some, were either the commercial centers of their time or the seats of kings. Archaeologists had to become supreme detectives in order to locate the sites of these cities, and the greatest help came when the cuneiform script was deciphered.

Cuneiform script is a series of wedge-shaped characters supplemented with lines and dots that were impressed on clay tablets with a tool. These tablets, baked and hardened to stone by time, were found all through the Middle East as long ago as the seventeenth century. Many were brought to Europe where they reposed as oddities in several museums, but the scholars were completely baffled by the markings that resembled the footprints of birds.

What is cuneiform script like?



Nineveh, as it may have looked at the time of King Sargon in the eighth century B.C.



The beautifully inlaid golden goat, found at the site of Ur.

Nineveh, the city of Sargon the Assyrian, stood in the light of the sun once more in

What was the first big discovery?

1846. Paul Emile Botta, a French physician and world traveler, had been fascinated with the ancient artifacts found in the Middle East and, like many such men with curious minds, began digging. Acting on the hints of Arab nomads, he combed the Mesopotamian area, and finally, at Khorsabad, his men uncovered the walls of a palace. It was lined with sculpture that did not resemble any other known antiquity.

Year after year the diggers worked with care, and slowly a huge building was exposed. It was the palace of the fabled Sargon. Enough material was found in this site to establish the existence of the Assyrians, a mighty nation of conquerors who ruled their land by the sword.

More discoveries followed. As the century wore on, Major Henry Rawlinson found a huge cache of tablets that proved the existence of Nebuchadnezzar, and Austen Henry Layard surpassed this by finding the city of Nimrud that was mentioned in the Bible. The Biblical stories were rapidly becoming verified. The cities and their rulers had existed.

To decipher these complicated writings

Who deciphered cuneiform script?

was much more difficult than the task faced by

Champollion with the Egyptian hieroglyphics. Georg Friedrich Grotefend, a German schoolteacher, examined the problem near the end of the eighteenth century and by 1802, announced his success. He had compared the script with more recent Persian markings and found certain similarities — similarities not in the writing itself, but in the form and usage of the language. Through years of painstaking work, Grotefend finally broke the code and the world of Nebuchadnezzar and Hammurabi was opened to the historians. This period of great antiquity, with names and deeds that were once regarded as only myths, now became a reality. With names, dates and places described accurately, archaeologists began to dig.

These finds expanded the horizon of historians. For the first time there was proof of civilization before the Egyptians. More important was the knowledge that the Assyrians themselves had been preceded by highly developed cultures. The large valley between the Tigris and Euphrates rivers was indeed the cradle of Western civilization.

The written account of a great flood, as described in the Bible, is not the only one. In 1872,

Was there really a great flood?

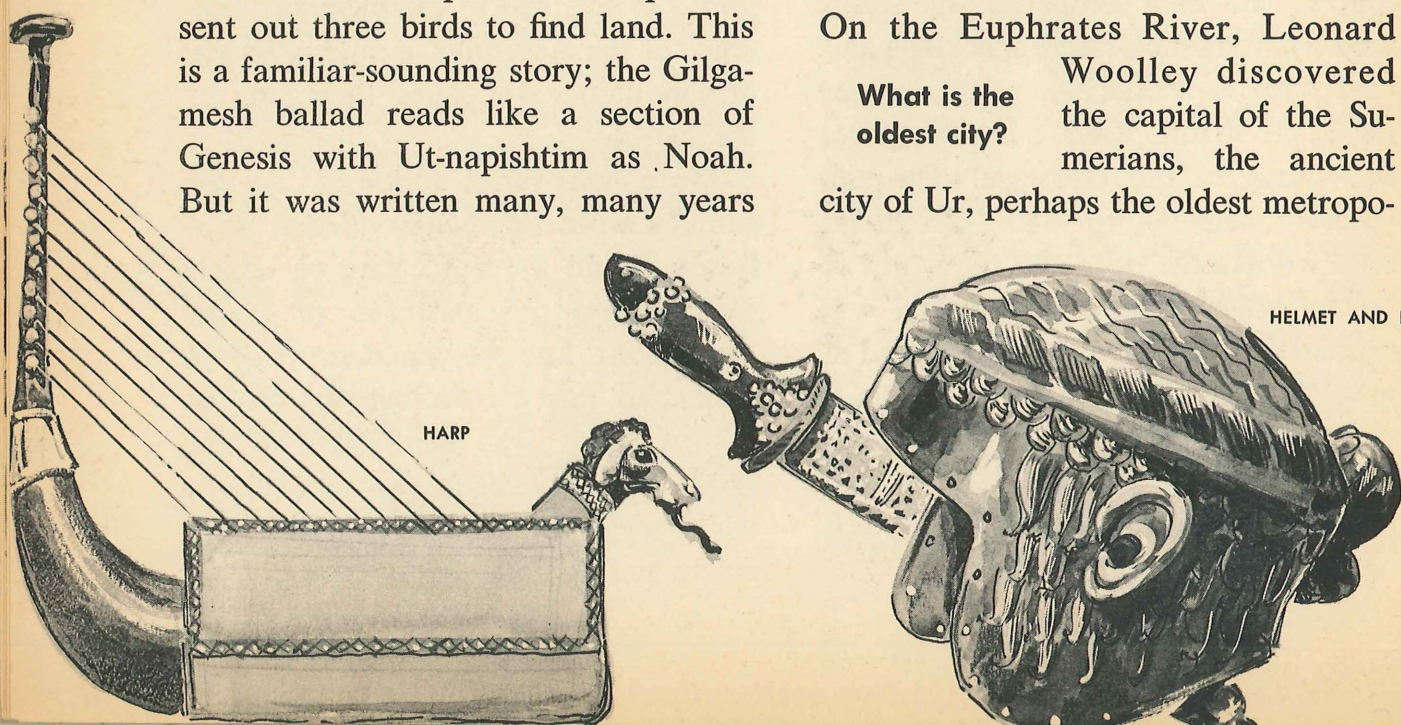
George Smith, banknote engraver by trade, amateur archaeologist by choice, deciphered a series of Assyrian tablets that had reached England. He read the story of Gilgamesh, a mighty folk hero who met Ut-napishtim, a man of mystery. Ut-napishtim related a strange tale wherein the gods warned him of a coming flood. He built a ship, took aboard all the animals of the field and forest, his family and friends, and awaited the deluge. When it came, the ship rode out a devastating rain and flood for seven days and nights. The ship finally landed on a mountain top after Ut-napishtim sent out three birds to find land. This is a familiar-sounding story; the Gilgamesh ballad reads like a section of Genesis with Ut-napishtim as Noah. But it was written many, many years

before Genesis, and so the story of the flood again seems to be verified as a historic occurrence.

Wicked Babylon, as described in the Bible, stood and flourished more than 3,000 years before the birth of Christ. When Robert Koldewey began digging at the site in 1898, he uncovered the base of the famous tower. It was a huge religious building built in a series of giant terraces and was known as a ziggurat. It was a towering structure, a shrine to Marduk, one of the Babylonian gods. Furnished with gold and tiled in blue, both the interior and exterior of the massive building gleamed in the sun and paid homage to the pagan god. Gold-lined temples were set inside the tower for worship, and elaborate apartments catered to the luxurious demands of the priests. When the Assyrians conquered Babylon, all but the base of the ziggurat was destroyed, but counterparts of the structure can be found, still standing, throughout Mesopotamia.

On the Euphrates River, Leonard Woolley discovered the capital of the Sumerians, the ancient city of Ur, perhaps the oldest metropo-

What is the oldest city?



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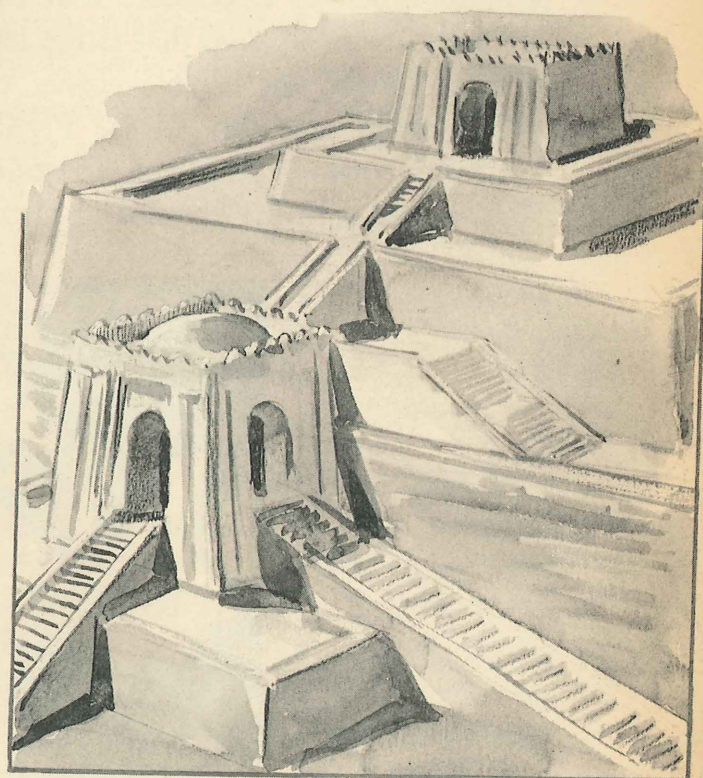
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The ziggurat, "Hill of Heaven," of Ur, after a reconstruction by Woolley.



Some of the beautifully preserved finds from the ancient city of Ur.

Courtyard within the palace at the time of Nabonidus, last king of Babylon.



STONE SCULPTURE OF A MONKEY (BABYLONIAN)

lis in the world. Ur was the home of Abraham, the Hebrew patriarch. Of great importance was a layer of clay that covered the basic foundations of buildings in Ur. This layer, over eight feet thick, would have to be the result of a great flood, according to geologists, and may actually be the residue of the famous Biblical flood.

The Sumerians, the oldest culture known, had a very complex society, rigid and tyrannical in nature, but scientifically organized. Mathematics was highly developed, medicine flourished and a strict legal code existed. It can easily be seen by comparing the Sumerian culture with later groups that many ideas and social systems came from these ancient people.

But Ur gives no clue to a preceding civilization. The Sumerians must have been the first in the Fertile Crescent.

No one knows for certain the original homeland of the Sumerians, but there are hints. The Indus Valley, over the mountains and far to the east, had a similar culture. The writings of both peoples are related, and so are the physical types. It is possible that the Sumerians were a group that either left or were forced out of this corner of ancient India and went to the Fertile Crescent. However, one thing is certain. They traded with the peoples of India.

Where did the Sumerians come from?

In the Persian Gulf lies Bahrein Island, and recently an ancient city was unearthed on the sandy plains of that barren spot of land. It proved to be as old as the Sumerian cities, and artifacts from both India and Sumer were found there. Archaeologists now think this was a trading center for ships from both cultures — in effect, a common meeting ground. This discovery does seem to point to India as the first home of humanity.

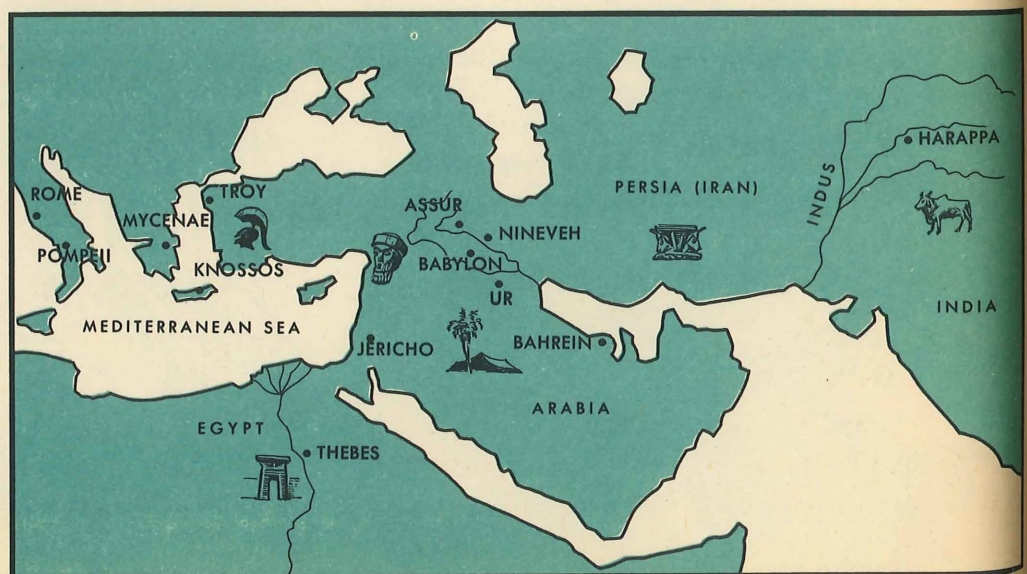
There are many settlements older than

Are there any settlements older than Ur?

Ur, but they cannot be classified as cities. Archaeologists have found

habitations that date back to Neolithic, or primitive man, but few show the organization that we associate with cities. If there was a migration from India, it might have begun before Sumer, when men moved in tribal units.

There is one settlement that deserves attention. It was found in the 1930's near the site of Jericho. More recent excavations revealed city on top of city,



Location map, showing the archaeological sites in the Fertile Crescent.



The building in the bottom layer of the hill in Jericho is possibly the oldest known building. It is at least 7,000 years old.

in the same pattern as Troy, but at the very bottom an arrangement of rammed mud walls and some graves were discovered. This, so far, is the most ancient settlement of which we know. It is not a city, perhaps only a village or town, but it does show organized communal life, and it is more than 7,000 years old! There is no hint as to the origin of the

people. They left no writing, they did not even make pottery, but they did live together in common cause. The beginnings of agriculture are evident here, and water was abundant. Primeval Jericho may be one of the first places in the Western world where men forsook nomadic tribal life and settled down to build a civilization.

The Cities of the Ashes

Pompeii and Herculaneum are an archaeologist's dream. Here are two cities, completely representative of the Roman Empire, preserved almost perfectly for the future to see. The tragedy of these ancient Romans has become a tableau, for these people were struck down in one day, and the actions of their

daily life have been preserved in a graphic form.

Unlike other lost cities, these cities were not burned and sacked by invaders. They were not buried in the slowly rising dust of the ages and no new cities rose above their ancient ruins. It is as though a single moment of time were

congealed, untouched and hidden away until men came centuries later to open the vault of time.

It was a typically hot summer day in

**What happened
to Pompeii and
Herculaneum?**

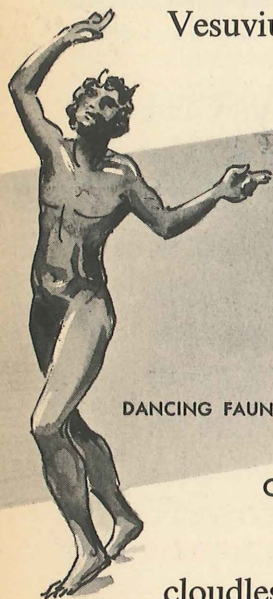
A.D. 79. The date was August 24. The people of the cities went about their

daily affairs, conducted business, prepared meals. The children played in the courtyards. Wagons and carts rumbled peacefully along the road from Pompeii to Herculaneum and on to the harbor where the Roman galleys unloaded cargo. Less than a mile from the center of Pompeii, the great mass of Mount Vesuvius thrust its bulk toward the

its pressure relentlessly forcing the earth aside, pushing constantly at the thin crust that separated it from the air. For a while the crust held firm, capping the inferno beneath. Then it collapsed.

With a roar that shook the heavens, a fiery column jetted far into the sky. Black smoke covered the sun, lightning flashed and the winds joined the assault.

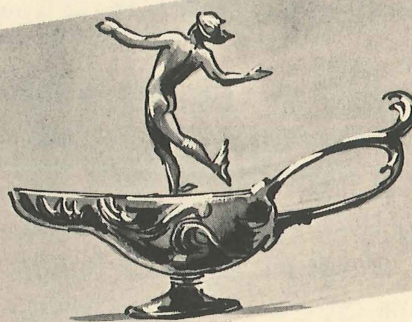
The peaceful summer day was transformed into a wild, burning holocaust. Stones rained down on the quiet cities, smashing roofs, covering the streets. Blazing cinders followed, whipping into the houses, filling every crevice, silenc-



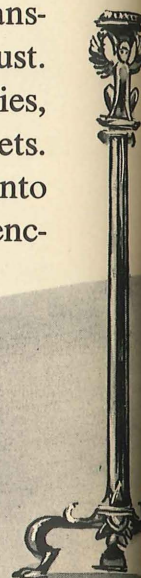
DANCING FAUN



TEMPLE DECORATION



OIL LAMP



BRONZE CANDLE-HOLDER

Objects found in Pompeii and Herculaneum.

cloudless blue sky. Its slopes were dotted with vineyards, and the thick clusters of grapes were almost ready for the harvest. Insects buzzed in the hot air above the cities, and the very earth seemed asleep.

It was not asleep. In the deep caverns beneath Vesuvius, white-hot streams of lava rushed and boiled, rocks melted and water flashed into steam. The earth was preparing an assault.

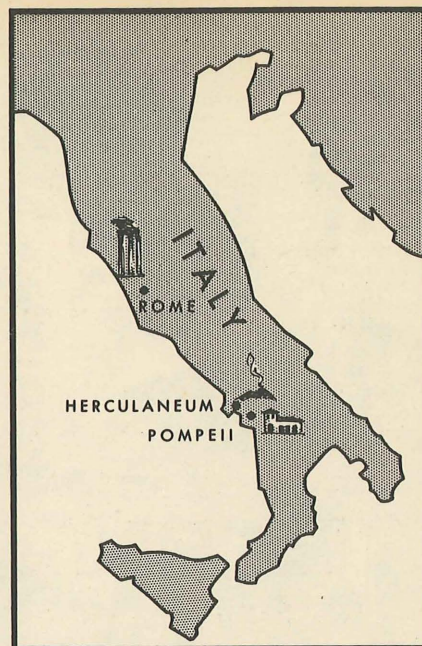
Slowly the boiling, seething mass rose through the chambers of the volcano,

ing all life. Then a soft white rain of fine ash descended like a blanket of white snow, drifting and piling against the marble columns.

When Vesuvius had spent its fury and silenced its underground voices, the white ash lay cool and clean over the quiet cities. The sky was blue once more, the insects resumed their darting flight and the sudden anger of a hot summer's day was over. Pompeii and Herculaneum were again at peace. But they no longer lived. The two proud cities lay entombed in silence. Homes, streets, people, busy voices were all blanketed in death.

Many people were able to leave Pompeii when the volcano struck, but the inhabitants of Herculaneum were not so fortunate. Closer to the sea, they remained trapped in their town. Hundreds were killed by the rock fall that rained from the sky. Pompeii was not struck so heavily at first; the stones were smaller, and the people had an early opportunity to leave.

Did anyone escape?



STATUE OF A YOUNG ATHLETE



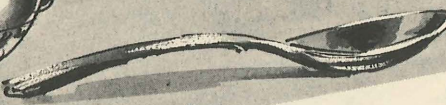
HOLDER



MIRROR



BOWL AND SPOON



Most of the survivors reached Neapolis, the early site of modern Naples, and when the eruption was over, they tried to return to their homes. But the cities were almost completely buried. Rain had fallen on Herculaneum, hardening the ash into a kind of cement, and Pompeii was almost completely covered. The cities were abandoned.

As the centuries passed, the earth slowly covered the last vestiges of man's work, and both cities were lost.

In 1594, an architect, Domenico Fontana, while tunneling an aqueduct through the region, found some of the ruins, but nothing more was done at that time. The cities slept undisturbed until 1748,

How were the cities discovered?

when a large canal was dug across the area. The workmen, digging much deeper than their predecessors, uncovered buildings and streets. By 1763, an excited and interested Italian government assigned Giuseppe Fiorelli to the task of excavating Pompeii. The work has continued since that time. It is the longest excavation in history, some 200 years, and all of Pompeii is not yet uncovered. The work continues, and more and more of ancient Roman life is slowly coming to light.

What was Pompeii like?

Pompeii was a typical Roman city, extremely well laid out, with its streets and houses forming a symmetrical pattern. There was a theater district, markets, industrial buildings, public baths and many luxurious homes. An amphitheater, a full-sized stadium, pagan temples and beautiful



statues all graced this clean and efficient city. The walls of many buildings were covered with paintings and frescoes, perfectly preserved by the volcanic ash that kept destructive forces from marring the ancient works of art.

Pompeii today is in excellent condition.

What is the condition of Pompeii today?

Nowhere else does such a complete relic exist. In a sense, it is a monument to the Roman Empire. Archaeologists have cleaned up most of the city and its neighbor, Herculaneum. Today

the marble columns, buildings and statues stand free and clean, and scientists and visitors are able to visit and study this city of the past.

More excavation takes place every year. By 1961, two-thirds of the city had been restored. Some day all of Pompeii will be exposed. Like the legendary phoenix, which springs to life from its own ashes, Pompeii and Herculaneum will rise into the fresh air again, free of the anger of Vesuvius. As cities, they will no longer live; but as monuments, they can show us how the ancients lived.

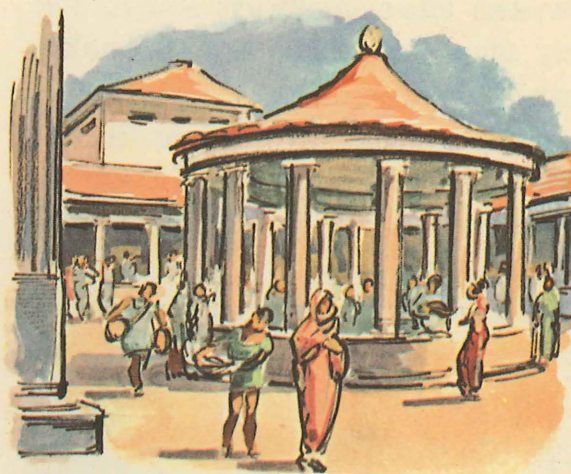
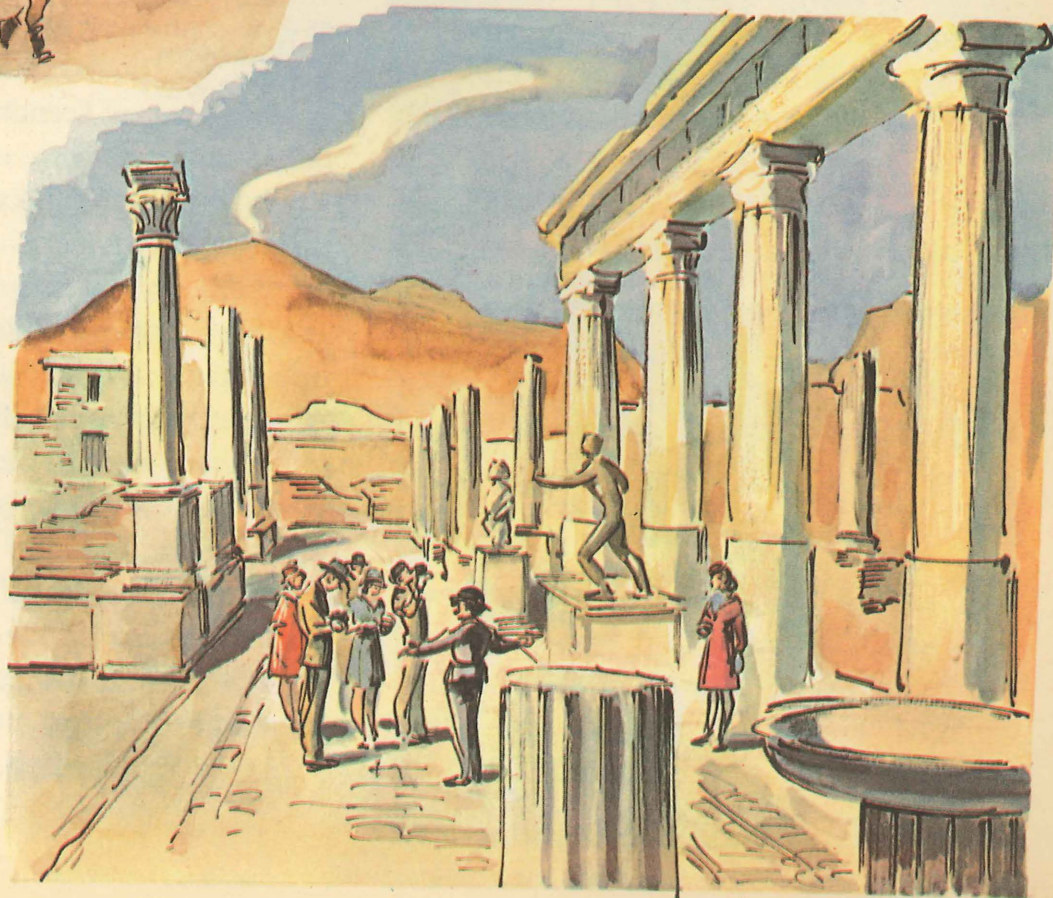


The artist here recreates the panic and terror of the people of Pompeii when nearby Mt. Vesuvius erupted.



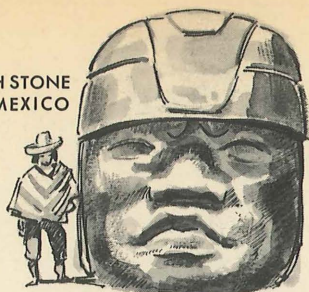
HAIRPINS OF IVORY
FOUND IN POMPEII

Pompeii, dug out of the ashes, as it looks today. Shown is the Temple of Apollo.



The market place of Pompeii, as it may have looked before the catastrophe struck.

"EL REY," 9-FOOT-HIGH STONE
HEAD FOUND IN MEXICO



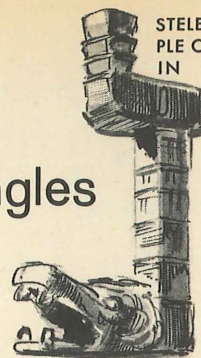
The Cities of the Jungles

When humanity spread across the globe and founded settlements that grew into cities, it always sought for likely sites. Fertile lands, river banks, ocean harbors — all these became the locations of young civilizations. In addition, the cities were usually set on open high ground that could be defended against invaders.

But men also moved into the warm, moist tropics and learned how to find food in the thick undergrowth of the jungle. As in other places, when tribal centers proved to be too simple for an expanding population, larger communal centers developed. They became cities.

However, in this case, these cities were surrounded by a savage environment, a wild jungle waiting just outside the walls, a jungle completely hostile to man. When the cities were destroyed or abandoned, the jungle closed in. It moved rapidly, not slowly and silently

STELE OF THE TEM-
PLE OF THE WARRIOR
IN CHICHÉN-ITZÁ

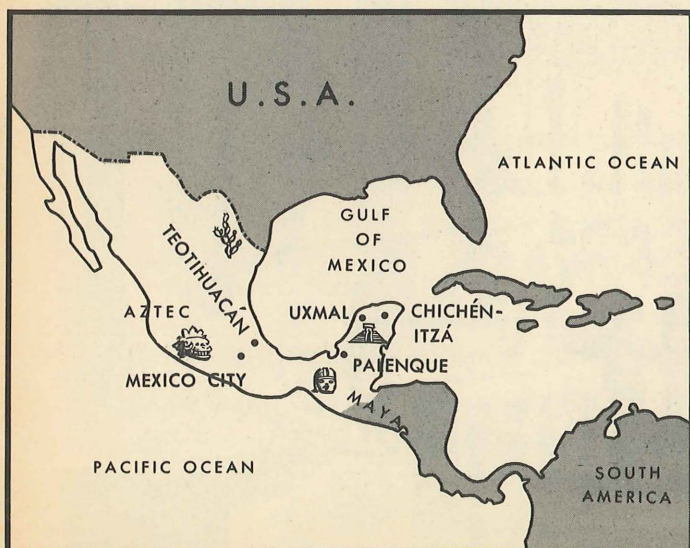


like the shifting sands of the desert, but boldly, to the accompaniment of chattering, roaring animals and shrieking birds. Jungle cities were conquered by swift-growing vegetation that found footholds in tiny crevices; vegetation sent out rootlets; sinuous vines twined around buildings and steadily split and demolished the structures of man through the pressure of growth.

The massive stone buildings of these cities were finally covered by the riotous vegetation of the jungle and became totally lost.

The Mayas were an Indian culture of Central America. They were an old race, descendants of the original wanderers who came across the Bering Strait from Asia and scattered through the Americas. They existed originally as Stone Age people and, like groups everywhere else, slowly developed higher skills. However, these American cultures suffered from isolation. There was no contact with the Old World, no exchange of trade, ideas or techniques, and so they developed much more slowly. When the invading Spaniards came to the New World with gunpowder and steel, they found a people who had not yet invented the wheel! What the Spaniards did not find was the

Who were the Mayas?



Mayan civilization, for it had vanished before they came. Only a small group of Mayan descendants remained in the cities. They were rapidly conquered.

There are many guesses, many conjectures, but no one knows exactly when the Mayan culture was established.

When was the Mayan culture established?

Some archaeologists place the beginning of the civilization somewhere in 2000 B.C. and the building of their first large cities about A.D. 300.

The Mayas became a highly developed culture with cities in Yucatán, Honduras, Guatemala and Chiapas. Roads were carved through the jungles, communication and trade flourished, and massive structures were erected. Mayan art with its weird face masks and intricate designs represented the deep religious beliefs and rituals of the people, for the Mayas were ruled by a priestly hierarchy. The religion was primitive and savage, featuring torture and human sacrifice. The people lived in constant fear as their rulers arbitrarily selected victims for homage to the "Serpent God."

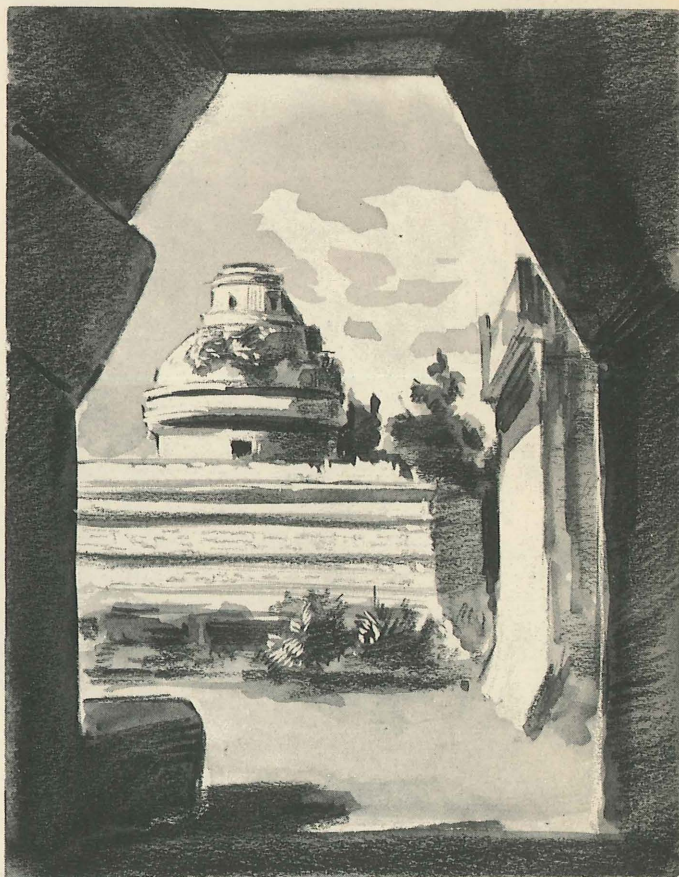
Yet with all this ritual and savagery, the Mayas developed gold and silver metallurgy to a high degree. They found time to invent an accurate calendar and, most important, a hieroglyphic system of writing. They were undoubtedly on their way to a finer culture when everything stopped. The cities were abandoned, the people disappeared, and the rich green growth of the jungle returned. The civilization of the Mayas had ceased to be.

No one knows what happened to the Mayas. There are several educated guesses that may

What happened to the Mayas?

be made, but it is a mystery that will probably never be solved. We do know that there were three distinct periods in their history. But each of these periods featured an abandonment of cities and

One of the few round buildings in Mayan architecture is the astronomical observatory at Chichén-Itzá. Work pursued in observatories such as this one confirmed the correctness of the Mayan calendar.



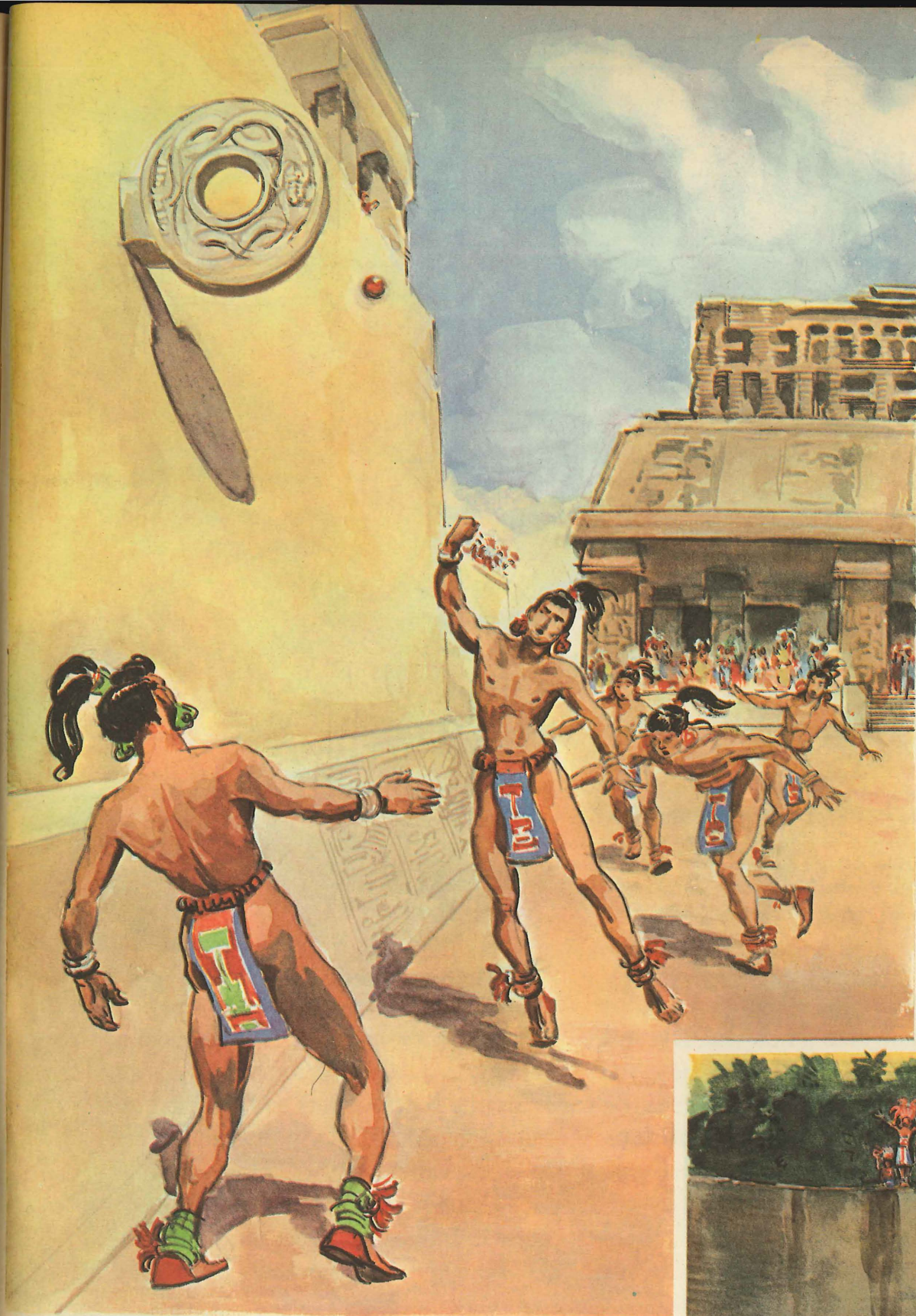
The observatory is seen through a typical "Mayan arch" — a pointed arch. The Mayans never learned how to build the curved keystone arch.

the founding of new settlements in new regions.

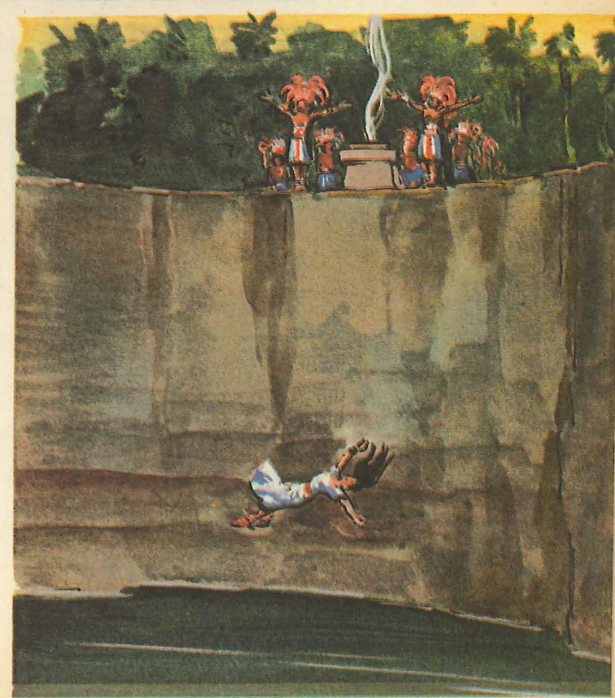
It must have been a tremendous undertaking for the people of an entire



Words can hardly describe the feeling of satisfaction and triumph when, after having been close to admitting defeat, Stephens and Catherwood suddenly discovered the first stone monolith. Not far from the Copán River in the oppressive heat of the jungle of Honduras they reached their goal — Copán, the chief city of the first Mayan empire. Stephens was able to buy the city for fifty dollars.



This is how the scene may have looked (above) when one of the ceremonious ball games was in progress. The "ball park" in Chichén-Itzá was a court measuring 225 by 545 feet, with walls on the long sides and a little temple on each of the far sides. The object of the game was to get a rubber ball through one of the rings that were placed in the middle of each of the two walls. At the right is the well where maidens were sacrificed.





The stone cities of the Mayans, Aztecs and other civilizations were temple cities, and only the priests and the nobility lived there. The rest of the population lived in primitive huts covered by thatched roofs, just as many Indians do today. At the right is an Aztec calendar stone.



city to pack up and move through the dangerous jungle to a new site. But this is what they did, and on the new site stone blocks were lifted from the earth, cut, polished and set into place to form new buildings. It seems aimless, and only one explanation seems logical.

The Mayan system of agriculture was very primitive. The farmers merely burned the land clear and planted their corn in the fields. As the years passed and the fields were drained of their fertility, the farmers moved farther into the jungle to clear new lands. After many years, the area around a city

could no longer grow enough food to sustain the people, and a mass exodus began.

By the year 1200, the Mayas had all but vanished. Did they die out? Were they assimilated into other groups? Were they destroyed in war? No one knows. Only their cities remain to tell us about their once proud existence.

In 1840, two men entered the jungle in Honduras on a search for a Mayan city. John Lloyd Stephens, an American lawyer, and

**Who first found
a Mayan city?**

Frederick Catherwood, an artist, cut and hacked their way through the underbrush on a hunt based on old stories and dusty manuscripts. The conquering Spaniards had seen the abandoned cities, and some of their missionaries had left written proof.

Stephens had become interested in the ancient Central American cultures and was determined to find the Mayan city of Copán. He knew roughly where it had to be — the old writings seemed quite definite.

But finding the city was not as simple as looking over a dusty landscape of Mesopotamia for a mound. The jungle in Honduras offered no wide vista for the eye to scan. The heat was oppressive, the insects an annoying plague, and Stephens despaired of ever finding a huge city in the riot of trees, vines and wild animals.

But deep in the jungle, not far from the Copán River, Stephens and Catherwood suddenly came upon a flight of stone steps, then a wall, then a terrace. Beyond the terrace, the jungle closed in once more, but each step the ex-

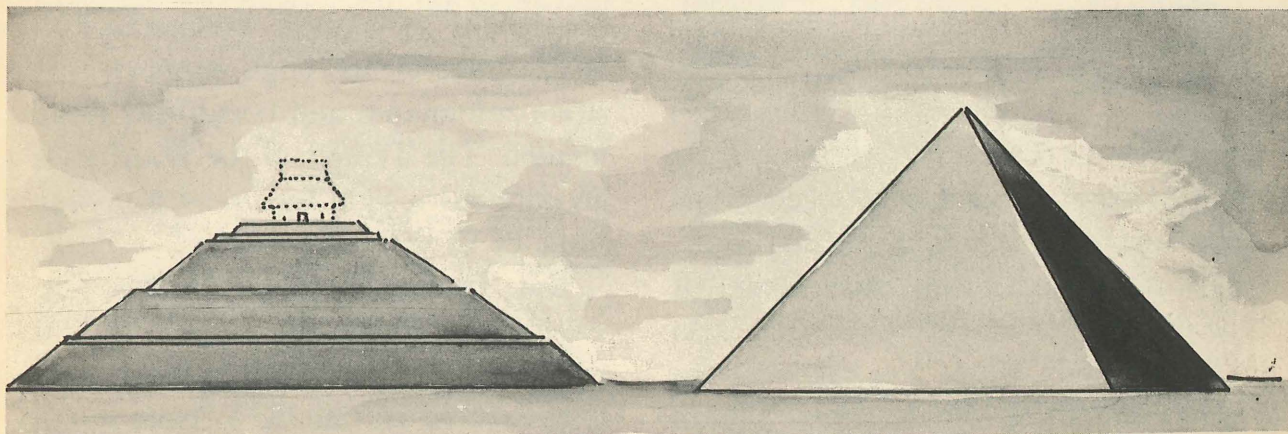
plorers took led them past stone monoliths carved with stern faces. When they had almost reached the river bank, they were blocked by a tremendous mass of stone. Stephens began to climb and found he was ascending a series of large steps. When he reached the top, he looked out over a ruined and desolate city. He had found Copán!

In spite of the condition of the buildings, Copán was impressive. The stone work was precise and so massive that men still wonder how it was lifted into place. The structure Stephens stood on was built like the Babylonian ziggurats — a pyramidal building in a series of steps.

A final footnote to Stephen's discovery is humorous. He was met by the man who owned all the land along the Copán River and was told to leave. Stephens offered to buy the Mayan City and to his surprise, Don Jose Maria, the owner, agreed to sell.

The deal was arranged and Stephens consequently became the first archaeologist to own completely a lost city. The price? Fifty dollars!

The picture is a schematic drawing of the Pyramid of the Sun at Teotihuacán, Mexico (on the left) and the great pyramid at Giza in Egypt (on the right). The comparative size of the two pyramids is indicated. Note that while the Egyptian pyramids were built as burial places, the Mexican pyramids served as temple foundations.



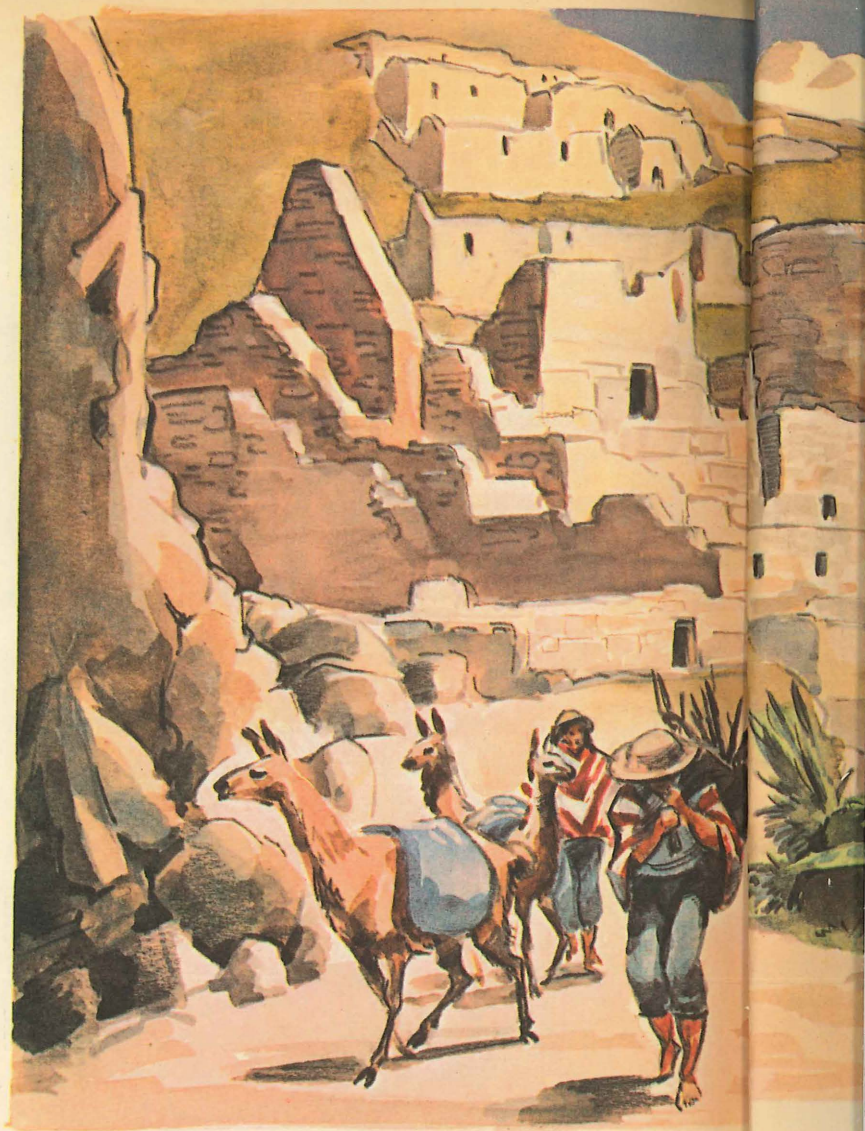
This is Machu Picchu, the Lost City of the Incas, as it looks today. Never conquered by the Spaniards, it was discovered in 1911, enveloped by the jungle.



The automobile looks out of place in Cuzco today.

Edward Herbert Thompson, a young archaeologist, was fond of reading old reports. Chichén-Itzá, in Yucatán, was well described by Diego de Landa, a Spanish bishop who accompanied the invaders. The city was still standing at that time, since it was one of the most recent of the Mayan settlements. De Landa also wrote of the "Cenote," a sacred well into which sacrificial victims were thrown to appease the gods. In addition, the

**How was
Chichén-Itzá
discovered?**



well was supposed to contain a treasure of sacrificial gold.

Thompson followed the clues carefully and in 1885, he came upon the city. It was enveloped by the jungle, yet the majesty of its buildings shone through the tangle of vines. This was the height of Mayan architecture — large, graceful buildings, supported by stone colonnades and beautifully ornamented. The Temple of the Warriors is an impressive sight today, even though some of its walls are missing.

But Thompson made another discovery. He found the sacred well. It was a natural pool with a stone platform erected on one bank, from which the victims were sent to their death.



Thompson was sure that gold lay at the bottom and he hired divers to search the depths. They found a treasure of gold. They also found hundreds of bones, the remains of people sacrificed to a fierce god. Most important, they found artifacts — tools, utensils, weapons, sculpture — all the items that enable an archaeologist to reconstruct a culture.

The work at Chichén-Itzá is still going on, and new cities are being found in the jungle. Dzibilchaltun, also in Yucatán, is proving to be the largest Mayan city yet excavated. It has the distinction of being one of the oldest yet one of the most recent cities of the culture. It was obviously inhab-

ited continuously throughout the rise and fall of the Mayas. The Spanish found a handful of Mayas in Dzibilchaltun when they arrived, perhaps the last of this race of proud people. It is said that descendants of the Mayas still live in Yucatán, and it may well be so, for some of them have the same fierce, hawk-nosed profiles so carefully carved on the stone statues.

There were several other ancient groups

**What other cultures
have been found
in the Americas?**

that inhabited
this hemisphere. The
Aztecs and

Toltecs left many ruins in Mexico. Mexico City is the site of the Aztec capital of Tenochtitlán, where Cortez made his triumphal entry after defeating the army of Montezuma.

In South America, high in the Andes Mountains, the Peruvian Incas had built an empire. Like the Mayas, they were a proud, fierce race, and they defended their realm with a series of fortresses built on the peaks. Master engineers and master architects, the



Inca festivities marked the beginning of summer. The king was carried in pomp through the streets.

Incas were able to construct buildings by fitting stones together without mortar. Although they had primitive tools, they managed to cut stones with such precision that the edges matched perfectly. The Inca empire was connected by roads carved out of the cliffs of the Andes, roads that crossed gorges and rivers with suspension bridges made of twined fibers.

But the science of the Incas was no match for the more modern weapons of the Spaniards. Francisco Pizarro conquered them in 1532. Today, tourists visit such ancient cities as Cusco and Machu Picchu and marvel at the skill of those ancient stone workers.

In the teeming jungles of the Malay

**What was the
accidental discovery
in Cambodia?**

Peninsula,
Henri Mouhot,
a French natu-
ralist, was col-

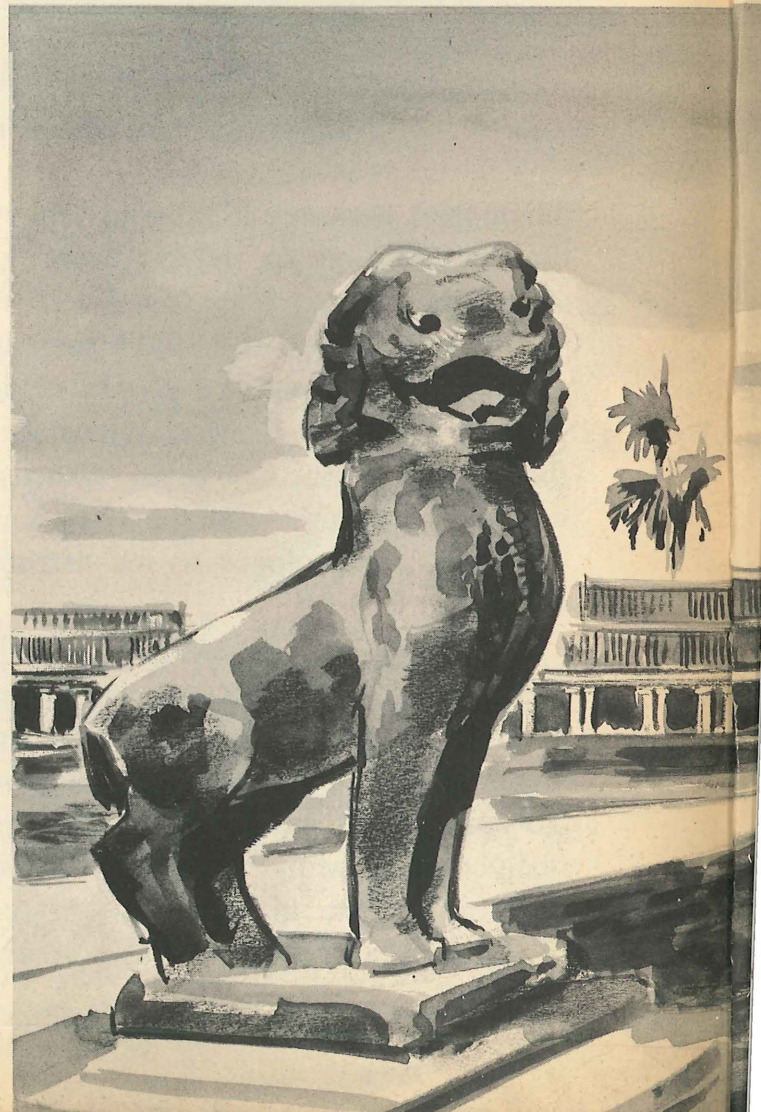
lecting specimens. By chance he heard his native guides talking of a "lost city," and his scientific curiosity led him to look for it.

Although he was never sure that the city really existed, he kept on through the swampy trails and tangled undergrowth. Then, to his surprise, he came upon the city. It was immense, with miles of roads, canals, bridges and causeways — a metropolis sitting silently in an Oriental jungle. That was over one hundred years ago. Mouhot never learned the full story of his city, but the patient work of archaeologists over the years unraveled the secret.

Among the most magnificent ruins in the world today is the ancient ruined city of Angkor Thom and its fantastic temple, Angkor Wat.

The city is Angkor Thom, capital of the Khmer Empire that ruled the Malay Peninsula from A.D. 1 to 1432. It is fascinating because of the extremely ornate architecture, but the most impressive structure is Angkor Wat, the temple to the god Vishnu.

The Khmers vanished in 1432, but there is no mystery about their disappearance. They were invaded and conquered by the Thais. Those who were not killed were scattered through the peninsula, and the Khmers ceased to exist as a race. Curiously, the Thais did not either destroy or use the city. They left it to the mercy of the jungle, which quickly covered the intricately carved buildings and hid them from the sight of man.



The Continuing Search

Archaeology is a living science that continues to grow. Every year new techniques are devised, new methods for dating, new ways to preserve delicate artifacts. The ancient languages are being deciphered and undiscovered cities are still sought.

Today, archaeologists are working everywhere. The older sites still yield new information and in some cases, more ancient cities beneath the present ones. Clues are continually being found that may lead to other sites, and the preserved legends of the human race

**Where are
archaeologists
working now?**

contain references to settlements that have not yet been found.

India is yet to be thoroughly researched. It may reveal a culture older than any of which we now know. China has a history of great antiquity, and the jungles of Africa may hold secrets we have not suspected. There are still many places for archaeologists to investigate.

There are vague legends that tell about the cities of Mu and Atlantis, supposedly civilizations with a science and technology surpassing that of the present time. The legends tell of the sinking of

**Are there cities
beneath the sea?**

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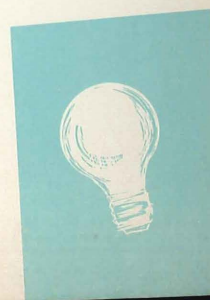
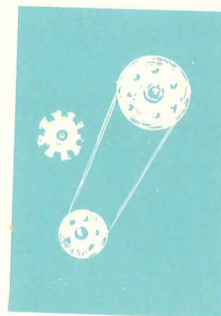
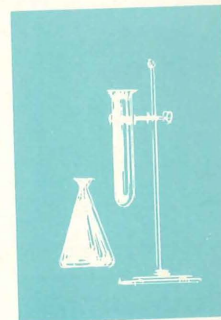
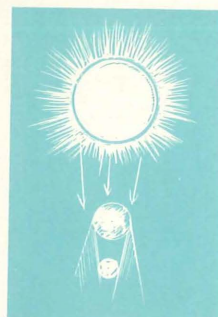
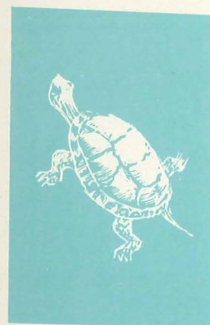
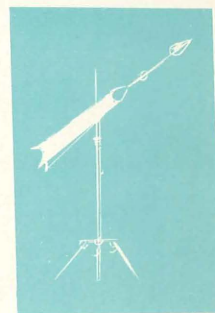
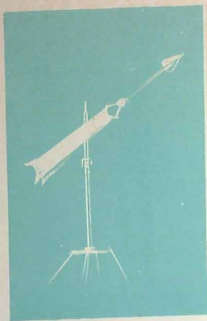


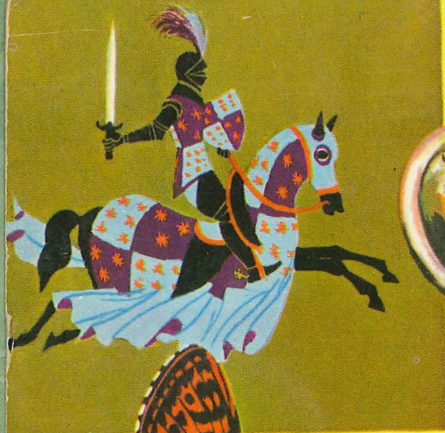
Since the invention of the aqualung, archaeologists have taken advantage of this method of free diving to explore the ocean depths. Above are some of the objects recovered from long-lost ships.

these cities into the sea. However, scientists regard these stories as pure myth. It may be that there are cities under the sea, cities that were submerged by earthquakes which unsettled a stretch of coastline. If so, they are bound to be counterparts of other ancient cultures, not remnants of mythical cities.

But archaeologists are seriously working under the sea now with skin divers. They are not searching for cities, but for sunken ships of the ancient world. Already some Phoenician, Egyptian and Grecian galleys have been found at the bottom of the Mediterranean Sea, their holds filled with the commercial wares of the time. These discoveries are beginning to fill in some of the gaps in the tapestry of history.

Archaeology is indeed a time machine. With it we have learned much of our own history, and we have begun to fulfill a human need to understand our primitive beginnings. But we have learned a lesson from archaeology as well. Future generations, perhaps thousands of years from now, will want to know about us — and so we have built a time machine that aims far ahead. Some countries have prepared “time capsules” that contain almost all the knowledge of our era. It is to be hoped that historians of the far future will not have to collect clues painfully and fit the broken pieces of our culture together. We have prepared for their research so that knowledge of humanity will continue in an unbroken stream.





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